cycles

—A MONTHLY REPORT

April 1954

FOUNDATION FOR THE STUDY OF CYCLES
New York, New York

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cycles
—a monthly report

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The Director's Letter

Dear Member:

Frederick H. Ecker, Chairman of the Board of the Metropolitan Life Insurance Company, once made a curious remark.

Mr. Ecker had been a guest at a luncheon given for me by Robert Struthers, who, before his death, was senior partner of Wood Struthers and Company, investment bankers of New York City. At the luncheon (naturally!) I talked about cycles.

After the luncheon, Mr. Ecker said to Mr. Struthers (as nearly as I can remember Mr. Ecker's words, as Mr. Struthers repeated them to me later), "It's all right to play with this cycle business if you are sure there is nothing to it. But if you ever come to believe that this fellow Dewey has something, drop it like a hot potato. There would be nothing worse for the human race than to be able to know the future."

Complete Foreknowledge Bad

Probably Mr. Ecker meant that *complete* foreknowledge of the future would be bad. If so, I agree with him.

For example, suppose *you* had complete foreknowledge of the future. You would know everything that was going to happen from now to the end of the world. Among other things you would know, if it were the case, that tomorrow afternoon you were going to be involved in an automobile accident. In that accident you and another man were going to be killed.

Naturally, knowing the result of the ride, you would not take it. Consequently you would not be killed.

Now this fact would have many consequences. Your wife would not marry the man from Peoria, because she would not be a widow. Your assistant would not get promoted, because you would still be alive. Lacking the promotion he would quit and move to Rochester, to which place he would not have gone if you had died. He will have a child he would not otherwise have had. So will you. And so on. In time, the whole course of history would be changed.

If you are to have *complete* foreknowledge you would have known all these things, too.

This alternative knowledge would have to be yours for every possible act of yours no matter how trivial. And the eventual repercussions of trivial acts might be more important than the consequences if acts which, at the time, seemed to be major.

Unless you have more restraint than most of us possess, I am afraid you would exercise your powers of foreknowledge for your own benefit, no matter how much it upset the plan of the universe. A comfortable life for the next twenty or thirty years might seem more important to you than a devastating war thirty or forty thousand years hence.

The Man Who Could Work Miracles

H. G. Wells once wrote a story called •

"The Man Who Could Work Miracles" in which a little Englishman named Fotheringay found himself able, by force of will, to perform miracles. You may remember the story. Fotheringay went from lesser miracles, such as commanding a lamp to turn itself upside down, burning steady, to greater and greater ones until, wishing to extend the night, in imitation of Joshua, Mr. Fotheringay used his powers to stop the rotation of the earth.

The earth stopped all right. But all the movable objects on it, including Mr. Fotheringay, went flying off into space, impelled as they were by the force of momentum. Mr. Fotheringay thus saw that too much meddling with the forces of nature was not a good thing.

His final command was as follows, "In the first place, when all I've got to say is done, let me lose my miraculous power, let my will become just like anybody else's will, and all these dangerous miracles be stopped. I don't like them. I'd rather I didn't work 'em. Ever so much. That's the first thing. And the second is— let me be back just before the miracles begin; let everything be just as it was before the blessed lamp turned up. It's a big job, but it's the last. Have you got it? No more miracles, everything as it was—"

Perhaps this is something of what was in Mr. Ecker's mind when he said that foreknowledge would be bad for the human race.

Cycles Can Never Give Complete Foreknowledge

But the study of cycles can never give complete foreknowledge. There will always be accidental variations and non-cyclic factors which will enter into every situation, no matter how much we learn about cycles.

When the caveman (and before him, the chipmunk and the squirrel) learned that winter always follows summer, he made a major stride in learning how to adjust himself to his environment. Thereafter, in times of plenty, he could lay up for the times of want. In times of cold and of privation he could look forward with hope and certainty to the time of warmth and of plenty.

A knowledge of cycles enables us to do the same sort of thing, making use of cycles similar to the cycle of the year, but with other wave lengths.

A knowledge of cycles gives us merely a greater command over our environment.

● ● ●

WAR AND POST-WAR PRICE BEHAVIOR

The cycles with which we at the Foundation for the Study of Cycles are concerned are the repetitive ups and downs which occur at reasonably regular time intervals, as if the phenomena involved were influenced by perfectly regular periodic forces.

However, the word "cycle" is broad enough to include any fluctuation which comes around again to the place of beginning. It thus includes the increase in prices which ordinarily occurs during a major war, and the decreases from war peaks which ordinarily follow.

In our report for June 1950, we published a chart showing the behavior of the U. S. Wholesale Commodity Price Index during major war periods. This chart was prepared by Mr. Robert Geisinger, one of our members, for Montgomery Ward and Company. Mr. Geisinger is now a consulting economist. In this issue I am bringing his chart up to date. See page132.

The excess over maximum previous values at the current stage of the cycle is one measure of the inflation which was caused by the "New Deal" and the "Fair Deal." (For simplicity, I would call this combination of deals the "Double Deal", if I were not afraid that someone might read something into the term. That would be unfortunate, as we at the Foundation are of course strictly non-partisan.)

● ● ●

WHAT KIND OF A COUNTRY ARE YOU LEAVING THE NEXT GENERATION?

The spirit of self reliance expressed in the advertisement on the outside back cover of this issue is not, I fear, the attitude of the mass of the people today. It is the attitude of those whose pattern was set in the early years of this century. It is the attitude of the pioneers.

In this connection it is interesting to reflect that during the latter half of the last century and during the first part of the current century the growth trend of physical production in this country was increasing by leaps and bounds. Now the underlying growth factor is increasing at only a moderate rate. Soon even absolute growth will slacken.

With a lessened rate of growth has come increased demand for security.

Is there a connection? If so, which is cause; which effect? That is, are we growing more slowly because people have lost their enterprise, or is it because of an instinctive realization that we are growing at a less rapid rate than formerly that people are more prone to seek security?

I do not know, but I have a feeling that it is one or the other—that there is a connection. That is, that the present search for security, in contrast to the search for opportunity, may be in some way connected with whatever it is that is making our population and our productivity grow at a slower rate than formerly.

If so, what is the solution? Again I do not know, but I have the feeling that mere exhortation is not going to be enough to turn the trick. I have the feeling that the problem is pretty fundamental. I have the feeling that the cure, if we achieve it, will be pretty drastic.

I believe in free enterprise. I detest Socialism in all its forms. I deplore today's trend toward Socialism. But I do not feel that it is enough to stand on the shore and say, "Roll back, oh ye waves!" Fine as that may be, I am convinced we must understand *causes*, and to that end, I feel that more knowledge about the decreasing growth rate of our economy may provide a necessary clue.

Cordially yours,

Edward R. Dewey

Director

Research

CYCLES IN MANUFACTURING PRODUCTION

Trend—continued

WE have reached a critical stage in the growth of manufacturing production in this country. From now on, growth will proceed less rapidly than in the past. It is important that you understand this fact and adjust yourself and your business to it. It is important that our government officials understand this fact. It is particularly important that the electors understand this fact. Growth at previous rates is no longer in the cards, *no matter who deals.*

The law of growth is that the *percentage* rate at which things grow decreases as the thing that is growing gets older.

This law does not prevent faster and faster *absolute* growth *up to a certain critical point.* In manufacturing production, as best it can be determined, we have now reached this point. Our *percentage* growth has been decreasing decade by decade for a hundred and fifty years, but from now on *absolute* growth is due to decline too. This idea will jolt many people. However, it is better to be jolted now by the idea than to be jolted later by the fact. "Forewarned is forearmed" may be a cliché but it is true, none the less.

How the law of growth works is easy to grasp. Let me give you a simple example. The law of growth of a certain thing is, let us say, that it grows 50% the first years 40% the second year, 30% the third year, 20% the fourth year, and so on—the *rate* of growth being 10% *less* each year.

If this thing starts out with a value of 1,000 it will grow as shown in Table 1.

A lessened *rate* of growth produces a greater *absolute* growth *up to a certain point.* In the simplified example given, critical point is the third year. Beyond that critical point *absolute* growth slacks off too.

It is worth repeating that *in manufacturing production in this country we have just reached this critical point.*

Now where do cycles come into the picture?

It is a truism to say that you cannot know the underlying growth trend of a series of figures until you know about and adjust for at least the long term

Table 1

Time	% Growth	Size	Explanation	Absolute Growth
Start		1,000		
1st Year	50%	1,500	1,000 + 50% of 1,000	500
2nd Year	40%	2,100	1,500 + 40% of 1,500	600
3rd Year	30%	2,730	2,100 + 30% of 2,100	*630
4th Year	20%	3,276	2,730 + 20% of 2,730	546
5th Year	10%	3,604	3,276 + 10% of 3,276	328
6th Year	0%	3,604	3,604 + 0% of 3,604	0

*Critical or turning point of *absolute* growth.

cycles also present in the series.

As a result of the work done to date we now have a better idea of the long term cycles present in manufacturing production (see articles on this subject starting on page 5 of our report for January 1954 and on page 45 of our report for February 1954). This improved knowledge of cycles gives us in turn a better idea of the basic underlying growth trend of this series of figures.

I discussed this trend for you briefly in our reports for November 1953 and for January and February 1954. I would like now to discuss it more fully.

First, let me emphasize that the so-called underlying growth trend is merely a smoothing or idealization of what is left over after adjustment for the cycles. If the cycles have not been correctly determined, the growth trend which is left will not be the true growth trend either. In a series of figures as short as those for manufacturing production it is impossible to be sure that the cycles are determined correctly. Therefore, we cannot be *positive* that the trend is correct.

However, this fact has no bearing upon what has been said above in regard to the law of growth. That law holds good no matter what the cycles are. It holds good even if there are no cycles at all. Knowing the cycles merely enables us to *refine* our projections.

When the cycles can be determined more accurately we can determine the trend more accurately. In the meantime *all we can do is to accept the determined trend as the best approximation possible at the moment.*

Underlying growth trend—what the statisticians call secular or long-term trend—was determined for manufacturing

Table 2

Year	A. Index Value of Trend	B. Absolute Growth of Trend	C. Percent Trend is of Trend 10 Years Before	D. Percent Percent is of Percent 10 Years Before	E. Growth in Percent (Col. C—100)
1799	.054				
1809	.127	.073	229.6		129.6
1819	.28	.153	219.8	95.7745	119.8
1829	.59	.31	210.6	95.7745	110.6
1839	1.19	.60	201.8	95.7745	101.8
1849	2.3	1.11	193.2	95.7745	93.2
1859	4.3	2.0	185.1	95.7745	85.1
1869	7.6	3.3	177.3	95.7745	77.3
1879	12.8	5.2	169.8	95.7745	69.8
1989	20.8	8.0	162.5	95.7745	62.5
1899	32.4	11.6	155.6	95.7745	55.6
1909	48.4	16.0	149.2	95.7745	49.2
1919	69.2	20.8	142.8	95.7745	42.8
1929	94.6	25.4	136.8	95.7745	36.8
1939	123.9	29.3	130.9	95.7745	30.9
1949	155.2	31.3	125.5	95.7745	25.5
1959	187.1	31.9	120.1	95.7745	20.1
1969	215.3	28.2	115.0	95.7745	15.0
1979	237.2	21.9	110.1	95.7745	10.1
1989	250.6	13.4	105.6	95.7745	5.6
1999	253.5	2.9	101.1	95.7745	1.1

production in the United States as follows:

1. The values of the index were adjusted for idealized 50- and 36-year cycles.
2. The residual was smoothed (by a 25-year geometric moving average).
3. A smooth curve was fitted to this residual after adjustment to compensate for the fact that a geometric moving average of a growth curve gives values slightly below the actual values.

This smooth curve proved to have the characteristics shown in Table 2.

This table requires a little explanation.

Stub

The stub indicates years. For convenience, these years are taken at ten year intervals, starting 1799.

Column A

The first column after the stub, Col. A,

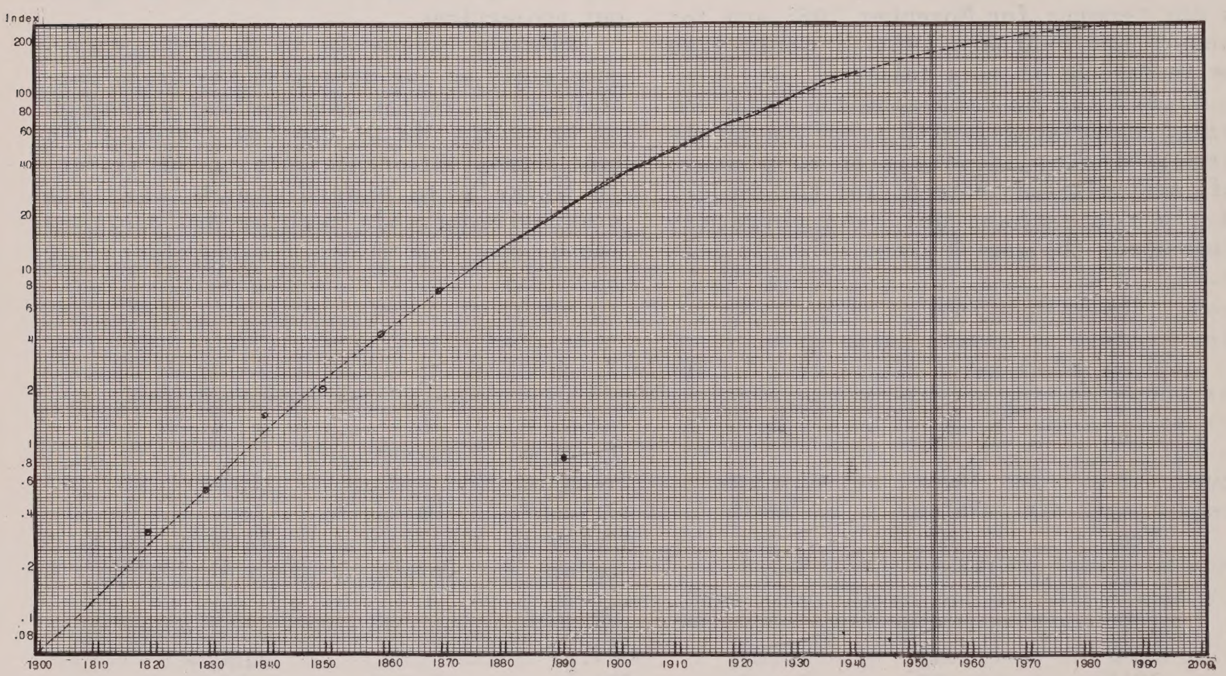


Fig. 1. MANUFACTURING PRODUCTION IN THE UNITED STATES.
Values Adjusted for Long Cycles and Smoothed. Underlying Growth Trend is Also Shown.
All Values Are on Ratio Scale.

Ratio Scale shows *percentage* relations, equal percentages being represented by equal vertical distances. For example 8 is plotted as far above 4 as 4 is plotted above 2 because in each case the percentage difference is the same (4 is twice 2, 8 is twice 4).

One advantage of a plotting of this sort is that growth appears as a smooth curved line concave downward, and its nature is more easily studied. Another advantage is that the variations in the early years show up in their true relationship.

The solid line represents manufacturing production after adjustment for 50- and 36-year cycles and war, smoothed by a 25-year moving average. The curve goes only to 1941 because the 25-year moving average loses 12 values at each end.

The dots with circles represent the averages of three decade values. For example, the dot at 1819 represents the average of the values for 1809, 1819, 1829. The dot at 1829 is the average of the values for 1819, 1829, 1839; and so on. When values are available only at 10 year intervals this method of averaging is the best way to smooth out minor irregularities.

represents the index value of the trend as finally determined. These values were chosen because they seemed to fit the actual index, after the index had been adjusted for 50- and 36-year cycles, better than the values of any other smooth curve that could be found.

The index chosen was the Foundation for the Study of Cycles Index,—with values equated to the old Federal Reserve Index, 1935 — 39 = 100.

Column B

The values in Col. B represent the absolute decade growth of the trend of manufacturing production. It is obtained by subtracting the value of the trend for each decade from the value for the decade before.

Column C

The values in Col. C represent the percentages that the trend value in Col. A

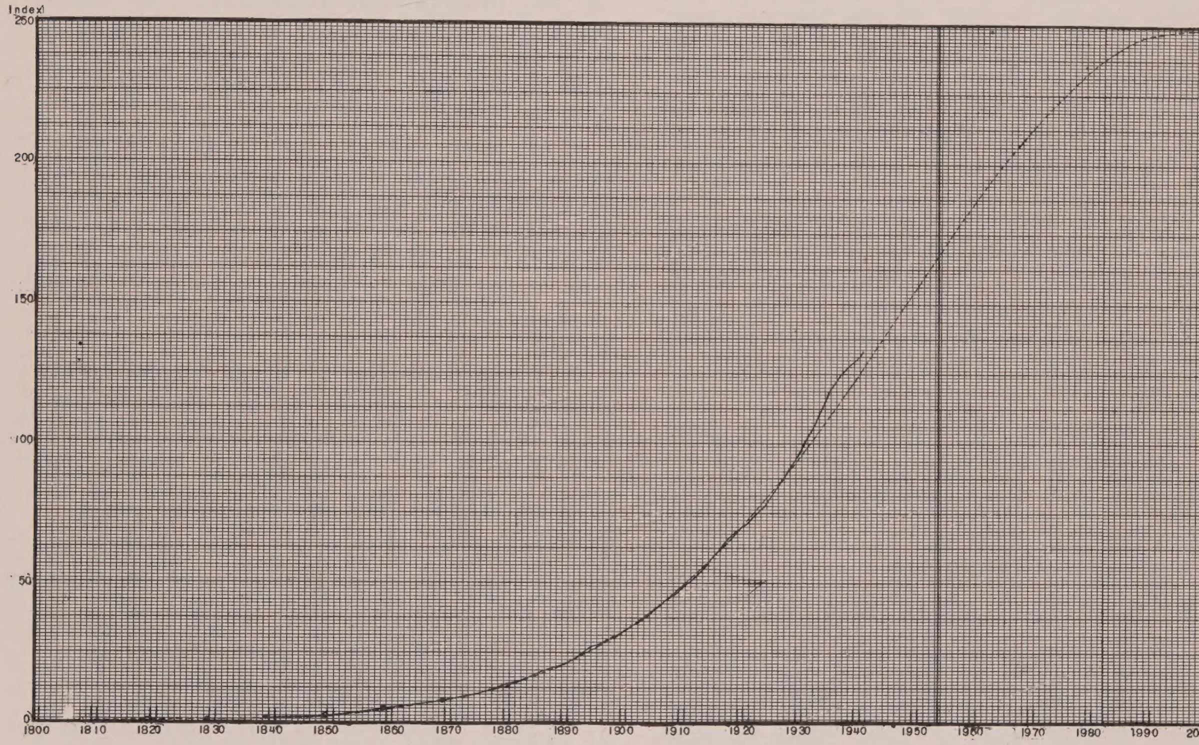


Fig. 2. MANUFACTURING PRODUCTION IN THE UNITED STATES.
Values Adjusted for Long Cycles and Smoothed. Underlying Growth Trend is Also Shown.
All Values Are Plotted on Arithmetic Scale.

The values plotted on this chart are identical with the values plotted on Fig. 1. The only difference is the scale. This scale is arithmetic. Fig. 1 is on ratio scale.

Growth increases by a constantly decreasing percentage at equal time intervals. When such values are plotted on arithmetic scale the curve goes up faster and faster for a while, then it starts to go up slower and slower, finally it bends over very rapidly.

The arithmetic scale is good for showing absolute values, but does not show *relative* values as well as ratio scale.

As in Fig. 1, the solid line shows the values of manufacturing production in the United States after adjustment for 50- and 36-year cycles and war, smoothed by a 25-year moving average to iron our minor irregularities. The broken line represents underlying growth trend 1800—2000. The dots with circles around them represent 3 decade averages of the data. In the early years data are available only at 10-year intervals.

for the various years are of the trend values ten years before. Thus the first figures in Col. C, on the line for year 1809, is 229.6% because the trend value of .127 for that year is 229.6% (2.296 times) the index value of .054 in 1799.

The next figure in Col. C for year 1819 is 219.8% because the index value of .28 for that year is 219.8% of the index value of .127 for year 1809. And so on.

Column D

The values in Col. D are the percentages that the values in Col. C are of the values in Col. C ten years previous. Thus in Col. D the value for 1819 is 95.7745% because 219.8% in Col. C is 95.7745% of 229.6, the value in Col. C for the year 1809.

You will note that all the values in Col. D are the same, which means that each value in Col. C is 95.7745% of the value in Col. C next above it. This is the basic characteristic of the growth trend of this particular group of figures.

Column E

The figures in Col. E show the percentage *growth*. In all cases these values are 100% less than the corresponding value in Col. C.

The Future

So far so good up to 1949. How about the future?

If the pattern of the last century and a half has been correctly determined, and if it continues, it is very easy to compute future values of trend. For 1959 the value in Col. C will be 95.7745% of the corresponding value in Col. C for 1949. As this value from the above table is 125.5%, the value in Col. C for 1959 will be 125.5% times 95.7745% or 120.1%, and the growth for the ten year period will be 20.1%. To get the value of the trend in 1959 we multiply the value for 1949 by 120.1% to get 187.1.

Similarly, we can obtain additional values for Col. C from which we can compute the additional values of Col. A to obtain the trend values for 1969, 1979, 1989, and 1999, as given in the remainder of Table 2.

These computations are the basis for the projection made in our report for February—a projection which is in direct conflict with the ideas held by many people.

For example, here is a letter from my friend Bill Stokes, of Lenox, Massachusetts:

"Dear Ed:

"...I do not see what justification there is for "flattening out" the dashed line "trend." As I understand the matter, the basic trend in this country is geared to the population increase. The Paley Report talked about 215 million people in 1975 and an *increase of productivity* per man hour "*in excess of the historical 2.1% per year.*"

"If there is any truth in the above facts then your dashed trend line is NOT flattening out and instead it is continuing the 1800-1940 sine curve almost to the vertical; at this particular moment this sine trend line is probably at 205 (1954) instead of the 160 (1954) position as drawn.

"If you disagree with the conservative population projection of the Paley Report try looking at Professor Pitchett's parabola of the third degree which projects a population of 41 billion in the U. S. by the year 2900. The Paley Report indicates that by 1975 the demand for electrical power will increase 260%; no horse and buggy age here. The President of St. Joseph Lead Company has estimated that consumption of lead in 1975 will be 150% over the present figure. The Executive Vice President of Gulf Oil recently delivered a paper stating that by 1975 the demand for coal would be 180% greater than at present. In view of all these opinions I cannot see much reason for the "dashed line trend" Figure 1-A.

"I take identical issue with Figure 1 on pages 46-47 because the *scale is logarithmic*. If you had set these figures out on a standard block chart the dashed line trend *would not be flattened out;* the dashed line on a square block chart would be a sine curve with a trend toward the vertical and not toward the horizontal.

"The projection as it stands must cause a shudder to the reader and loss of confidence at this very critical time. I therefore hope that you will go over the figures and scales carefully and bring them back within the realm of probability. I can see the cycles of possibly 52 years and possibly 35 years but where is the proof of the flattening trend? The proof seems to be that there is a flattening trend on a logarithmic chart. Granted, so don't use a logarithmic chart to show a simple relationship. If you are going to have progressively more people each year and progressively higher standard of living as the history of the past indicates why you simply are bound to need an arithmetical increase of goods and services. I do not see the need for a ratio—ratio with what? Are we not plotting a simple wave action around a mean?"

In reply I said:

"Dear Bill:

"I fear that some of the forecasters to whom you have been listening are not acquainted with the facts of life in respect to growth.

"The growth of everything in the universe—except the national debt—proceeds at a less rapid percentage rate as it gets bigger. It *has* to or else it becomes impossibly large and collapses. (That is what will happen to our debt if it does not change its pattern.)

"My justification for flattening the trend from 1953 forward is that *the rate of growth of trend has been flattening out year by year and decade by decade for as far back as there are figures.*

"The percentage rate of growth has now shrunk to a level so that, if it continues, the absolute arithmetic growth will henceforth likewise decrease from decade to decade.

"The facts are inexorable. It mades no difference whether we plot the figures on arithmetic paper, logarithmic paper, or any other kind of paper.

"You asked where is the proof of the flattening trend. The proof is in the table enclosed (Fig. 2 above) which shows that the smooth line fitted to the index of manufacturing production, after adjustment for the 50- and 36-year cycles, is going up now at a much less rapid percentage rate than it used to.

"Admit that the index of manufacturing production may not be exactly correct. Admit that the half century and third century cycles in these figures may not be exactly correct. Admit even that there may be no cycles at all. The fact remains *inescapably* that the percentage rate of growth from decade to decade has been decreasing with reasonable regularity for the past 150 years and that unless the precedent of 150 years is all of a sudden overthrown the *percentage* rate of growth is going to decrease decade by decade in the future. Moreover, from the critical date forward the actual *arithmetic* growth, which has been increasing decade by decade, will start to decrease too.

"I know these facts are hard to swallow, brought up as we are by wishful thinkers, political orators, demagogues, and worse.

"Even if the trend were 205 at the present time, which you think it to be, the conclusions stated in my report would be modified only in detail, not in essence.

"The *only* way you can successfully challenge my conclusions, except in detail, is to maintain that since the 1930's industrial production in this country has been enjoying a rebirth, as it is called. That is to say, that a brand new trend line has been superimposed upon the old one, like the brand new trend line which characterized the vehicle industry when people started putting gasoline motors in buggies. It is conceivable that we are now experiencing a rebirth, but as the present upturn is adequately described by long-term cycles and a smooth "unreborn" trend line, my own personal opinion is that the upsurge was caused by cycles which, when they go down, will naturally have a contrary effect.

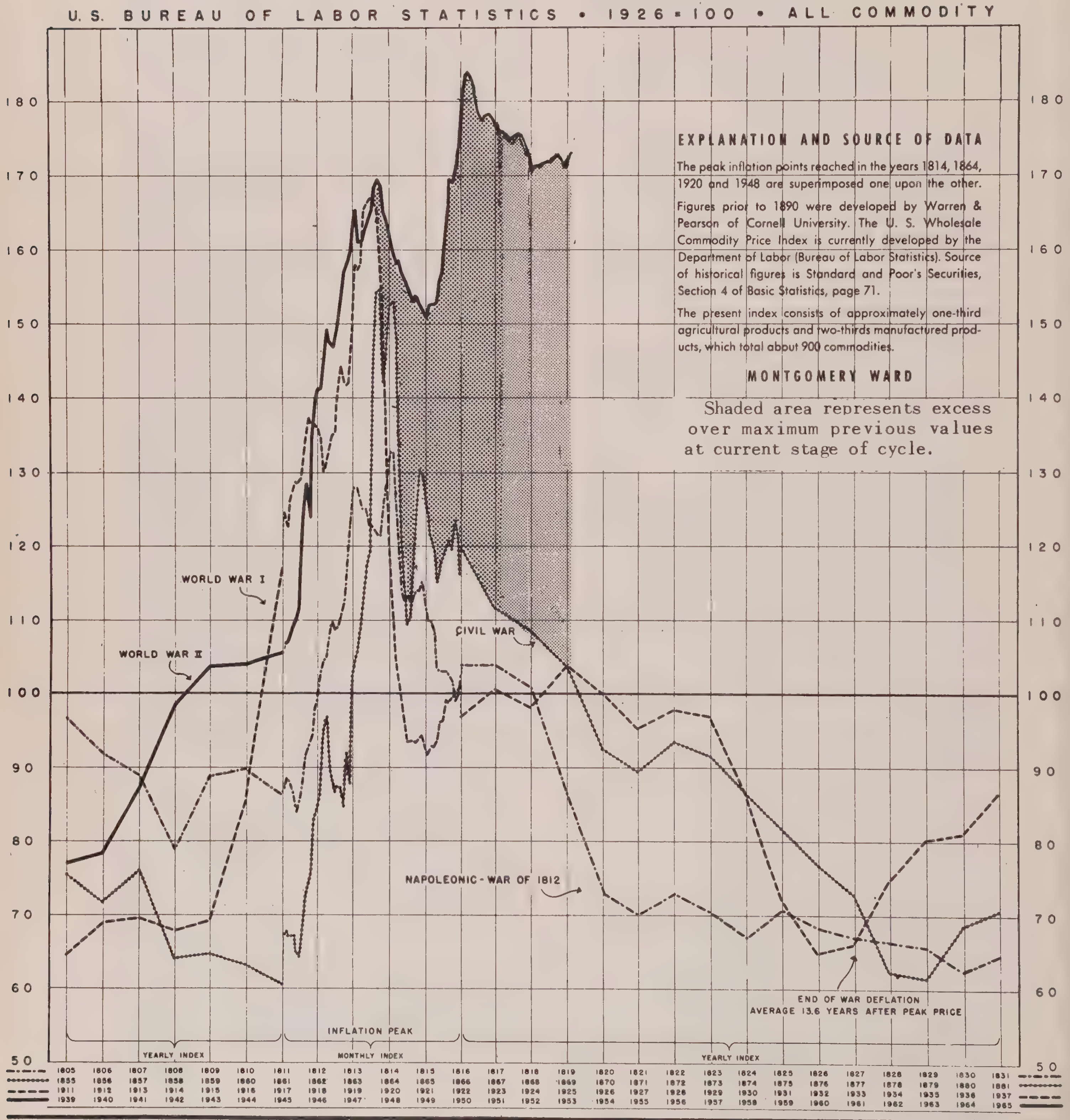
"Of course, no one really *knows* what trend will do in the future, but if we are going to do any guessing on the subject, it seems to me the part of prudence to assume that characteristics which have prevailed over 150 years are likely to continue.

"You ask, 'Are we not plotting simple wave motion around a mean?' We are. But there are means and means. Most people do not realize that this mean or trend obeys fixed laws. But it does, and knowing these laws can keep you from bumping your head!"

E.R.D.

U. S. WHOLESALE COMMODITY PRICE INDEX
MAJOR WAR PERIODS

by **W. R. GEISINGER**



EXPLANATION AND SOURCE OF DATA

The peak inflation points reached in the years 1814, 1864, 1920 and 1948 are superimposed one upon the other.

Figures prior to 1890 were developed by Warren & Pearson of Cornell University. The U. S. Wholesale Commodity Price Index is currently developed by the Department of Labor (Bureau of Labor Statistics). Source of historical figures is Standard and Poor's Securities, Section 4 of Basic Statistics, page 71.

The present index consists of approximately one-third agricultural products and two-thirds manufactured products, which total about 900 commodities.

MONTGOMERY WARD

Shaded area represents excess over maximum previous values at current stage of cycle.

Prices normally go up during wars and for a short time thereafter.

After previous wars prices always declined.

After World War II, however, our government manipulated the currency to keep prices up.

Excess of prices during the past four years over maximum previous prices after war peaks is shown by the shaded area.

LONG CYCLES OF HUMAN CHARACTERISTICS AND ABILITIES

by Stephen W. and Netta E. Gray

The seasonal distribution of births of "geniuses" and "uncommon" men and women differs from that of the general population, and the more rigorous the criterion of ability one applies, the more the distribution will differ from that of the larger group according to Ellsworth Huntington and others.[1] This is not exactly what the biometrician would have predicted. It might reasonably have been expected, in the absence of Huntington's data, that the distribution of births of unusual people would correspond with that of the general population but show, perhaps, greater amplitude of variation. Thus, the greater the absolute number of births, the more geniuses should appear. This would be in accordance with the well established principle that the larger the sample of a given population, the greater will be the range of any variable measured.

That this is not the case, implies that we are not dealing with a homogeneous population, but one which contains portions such as "geniuses" which are influenced by factors other than those which act upon the whole.

Such a notion is difficult to test; the comparative ability of individuals being open to no quantitative measurement. Indeed, even rough agreement about a single well known individual is frequently impossible to secure. But, though complete accuracy cannot be attained, the method of Huntington, using large samples, has merit in that it greatly reduces the effects of any single error, disagreement, or accident of history. This means that large trends, at least, may be observed.

Having the seasonal variation established, the next question is: To what extent is there longer term variation in the production of human ability, and how does it compare with the variation in the population? I have undertaken to examine the problem by using the people who practiced Poetry in Britain between 1200 and 1800. Poets were chosen because they are well documented and because a large number of critical opinions are available.

A total of 2,342 English Poets made up the master list compiled from 121 sources. Population curves were made for the list in each of the sources used. This was done by recording the number of poets living at each decade from the years 1300 to 1860. This is the *census* method and is comparable with data on the general population based upon official censuses.

With little variation, the population curves from the different sources showed the same shape; a high point at the end of the 14th century, one at about 1600 and another at 1800. This is, of course, exactly what any student who had taken English Literature in college could tell us. Yet, even as the bills of mortality seem only to confirm what the experienced physician knows, they also serve to codify the information in a manner to permit a view of the whole human picture without the distraction of too well remembered individual cases.

A typical curve is that from *The Oxford Book of English Verse*[2] edited by Arthur Quiller-Couch (Fig. 1A). The three peaks are clearly shown, although, the descending limb after 1850 on has no significance, as it represents merely the death rate of

Editor's Note:

Dr. Gray is presently Associate Professor of Anatomy in the Division of the Basic Sciences in the Health Services at Emory University, Georgia. His wife is an Instructor in Biology at Agnes Scott College at Decatur, Georgia. Much of this work was done while they were at the University of Illinois.

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[1] Huntington, Ellsworth. *Season of Birth,* John Wiley & Sons, New York, 1938. See also: *Cycles*—Report for December 1953 p. 336.

[2] Quiller-Couch, Arthur. *The Oxford Book of English Verse,* Oxford University Press, 1938.

the last poets included. In Fig. 3 (lowest curve) may be seen the population for England during the same period. The two curves show no similarity before 1800. The 14th century and 1600 peaks are striking deviations on the part of the poets. But the rise since 1700 looks at first like the result of the general population increase and we must try to desentangle the two. Correcting the poet's curve to the population curve by plotting poets per million of population (Fig. 2) we can derive another curve which shows that there is a true peak at 1800-1820 and that the decline in *relative* number of individuals preceded the *absolute* decline by almost 50 years. Thus the third peak is as real as the other two in spite of the masking effect of increasing population.

A qualitative break down of the 263 poets was then attempted. A competent student of English Literature, unaware of the purpose for which the data were to be used, divided the poets into five groups by subjective estimate of poetic ability. The pitfalls in this method are not to be overlooked, yet *in general* the selection would find wide agreement. Fig. 3 shows population curves for the five groups. It will be noticed that the top four curves (the better poets) are similar to the overall curve and to each other while the last, containing poets of the least merit, resembles the general population curve.

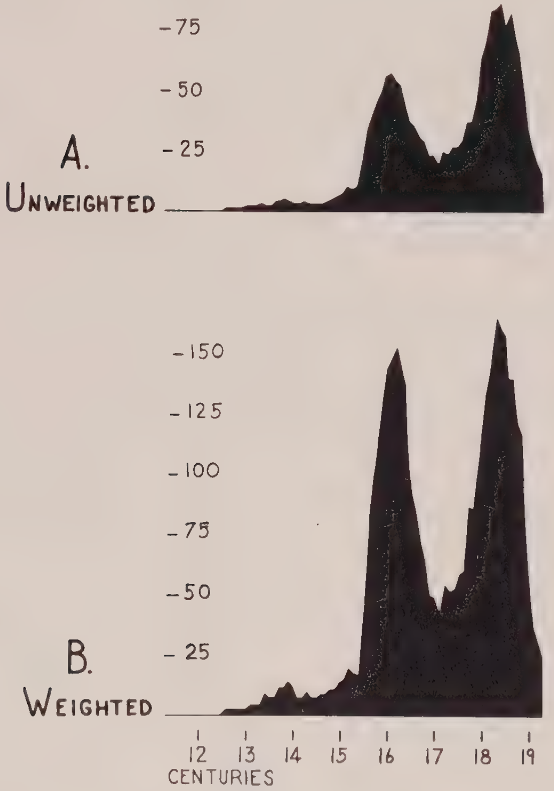


Fig. 1. A. Population of British Poets from Quiller-Couch.
B. Same—weighted for quality.

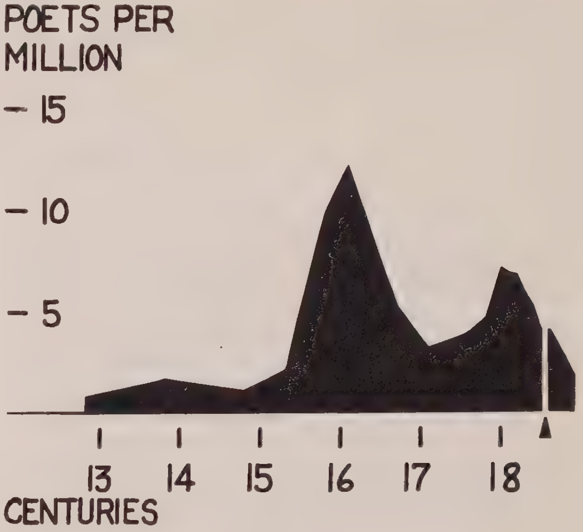


Fig. 2. Population of British Poets (Quiller-Couch) in Terms of Total Population.
Carat indicates point of decline in absolute numbers. Compare with Fig. 1-A.

Between groups four and five, then, there is a difference. It is too far down to demarcate "genius" but corresponds more nearly with the concept of "talent". As in the seasonal curves of Huntington, a qualitative difference manifests itself in the birth distribution of people of marked ability.

One important question may, by this stage, have entered the reader's mind. May it not be that, during the late 17th and early 18th century, men of talent chose other fields of endeavor so that there are not really fewer, but merely fewer practicing poetry? To this the answer must be no. Curves for all types of ability derived from such sources as the *Encyclopaedia Britannica,* the *Columbia Encyclopaedia,* and Havelock Ellis' *Study of British*

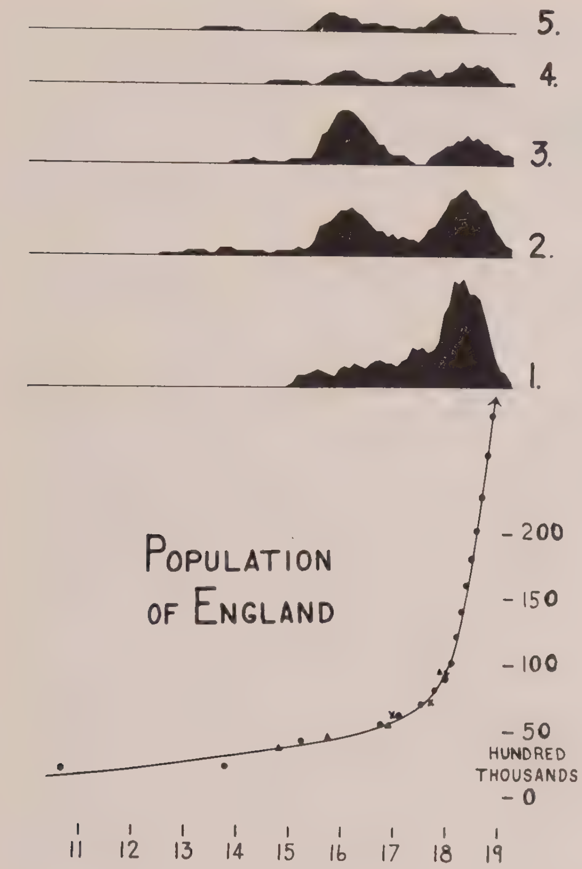


Fig. 3. Lower Curve: Population of England (various sources). Upper Curves: Population of British Poets (Quiller-Couch)

1. Obscure and unknown.
2-5. Increasing order of quality ("greatness")

Genius show the same peak around 1600 and the same low point around 1700. In other words, there was a decline in human ability in nearly all fields at the same time.

It will be noticed that in the peak around the year 1600 there is a visible drift so that the peak occurs slightly later among the less talented groups. Huntington found this drift in his seasonal curves of human talent.

Some further points need to be made. While the similarity of the curves in Fig. 3 are apparent, the effect of weighting them by factors of 1 through 5 may be seen in Fig. 1B so that we may say, in this instance, that the more poets the better poets *if we limit ourselves to the more selected groups only.*

We should also note that we are comparing a sample (poets) with the whole population which includes the sample. As the sample never exceeds 12.2 per million the error is negligible and less than the counting error of the census.

Another possible source of error is the fact that a population curve is sensitive to variations in life span of the individuals. Based on instantaneous measurement (time of census), census curves do not accurately gauge the number of individuals who have lived during the period covered. One who dies at the age of 31 may have been counted in at least three but not more than four decennial censuses, while one who lives to the age of 61 may have been counted seven times. The mean life span of our poets has varied from 66 years in the 14th and 15th centuries, to 54 in the 16th and 17th, rising again to 59 in the 18th and to 65 in the 19th century. This serves to decrease the apparent amplitude between the 1600 peak and the 1700 low about 11%, and does not change the form of the curve. Little is known about the general life span for the period mentioned. The life expectancy, at the age of 20, was about 40 years in 1840 and rose to 46 by 1920. It was doubtless lower at earlier times but I am not aware of evidence for wide fluctuations from century to century in the period under consideration.

Regardless of the possible errors in the actual numerical values, it is evident that individuals of poetic talent are not produced in constant proportion over the centuries any more than are men of ability produced proportionately over the seasons of a single year. The cause for such variation, like many fluctuations is obscure. This obscurity results, not from lack of apparent cause, but from a multiplicity of causes. The explanation for the varying number of poets, however, should probably not be sought among social and economic factors which directly influence poetic activity. They should be sought in factors which control all forms of human behavior. There is evidence that all human ability has varied cyclically over the span of recorded time and that we are here examining only one facet of a set of cycles which I hope some day to describe to you.

How it Came Out

THE 46-MONTH CYCLE IN STOCK PRICES

IN my report for October 1952 I reprinted for you (from *Barron's*) an article called "The Bull Market—A 46-Month Cycle Indicator Sees Its End This Year."

Commenting upon this article I said in my Letter for September 1952, "A most interesting article on the 46-month cycle in common stock prices has just come in. I plan to use it as the basis for the lead article in October. It has a definite bearing on the probabilities of stock market behavior for next year." In the October report I said, "I am hopeful that you will find some practical information in regard to stock market behavior in the following article by Veryl Dunbar and in the comments by me which follow it...

"Many articles, such as my recent article on the three-year cycle in stock market prices, are of little use unless they are combined with other information. In Dunbar's article, however, you have a presentation that stands on its own feet...

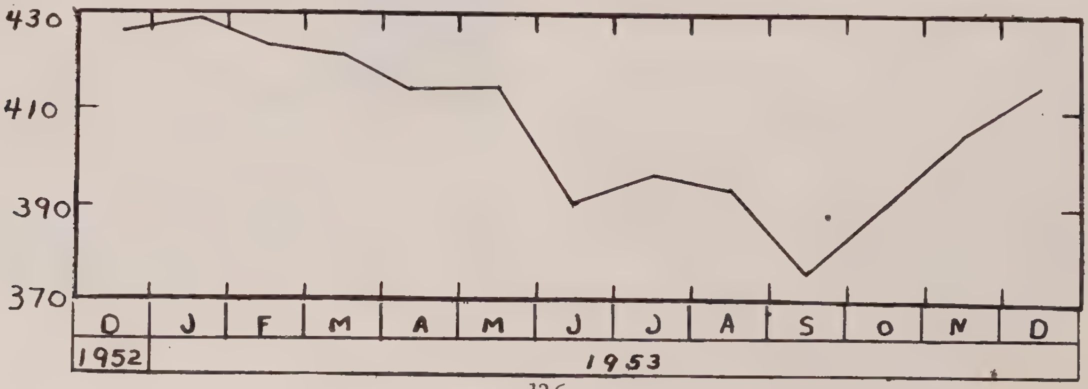
"In my opinion the 46-month cycle in industrial common stocks, discussed by Veryl L. Dunbar...is real. I feel that it throws light upon the probabilities of the future, and that it must be taken into account in connection with any attempt to forecast the future of stock market prices."

I went on to tell you that if the 46-month pattern is significant and if the behavior of 119 years continued,—that is, unless the precedent of 119 was broken, there was the *certainty* that the Axe Houghton Index (the one used by Dunbar) would decline from its value for the high month of 1952 to a lower value for the low month of 1953. Based on precedent, at a minimum this decline would be 5.7%; the odds were 2 to 1 that the decline would be 14.2% or more; they were 50-50 that the decline would be 19.8% or more.

The Axe-Houghton Index values are given in the form of highs and lows for the month but these values can be averaged. If this is done, the value for the high month of 1952 (December) turned out to be 426.4. The low month of 1953 (September) turned out to be 377.5. This amounts to a decline of 11.3%. Dunbar's forecast that there would be a decline was thus vindicated, but in this particular instance the decline was of less than average proportions.

If the 46-month cycle continues according to Dunbar's formula (which is something of an oversimplification of what seems to be a complicated cycle pattern), the probabilities are that the high month of 1956 will be higher, on the Axe Houghton Index, than the value of this index for September 1953 the low month of that year. But remember that this is merely a statement of probabilities and that the pattern has not *always* prevailed on the long side.

E. R. D.



The 33-Month Cycle in Building Construction

IN 1939 F. A. Pearson, W. I. Myers, and G. E. Brandow, all then of Cornell University, discovered a 33-month cycle in the rate of change of residential building construction.

By "rate of change" we mean the percent that the figures for each month of each year are of the corresponding month in the year previous. These figures thus show *relative* change and made the cycle easier to see, but the cycle is of course present in the actual figures likewise.

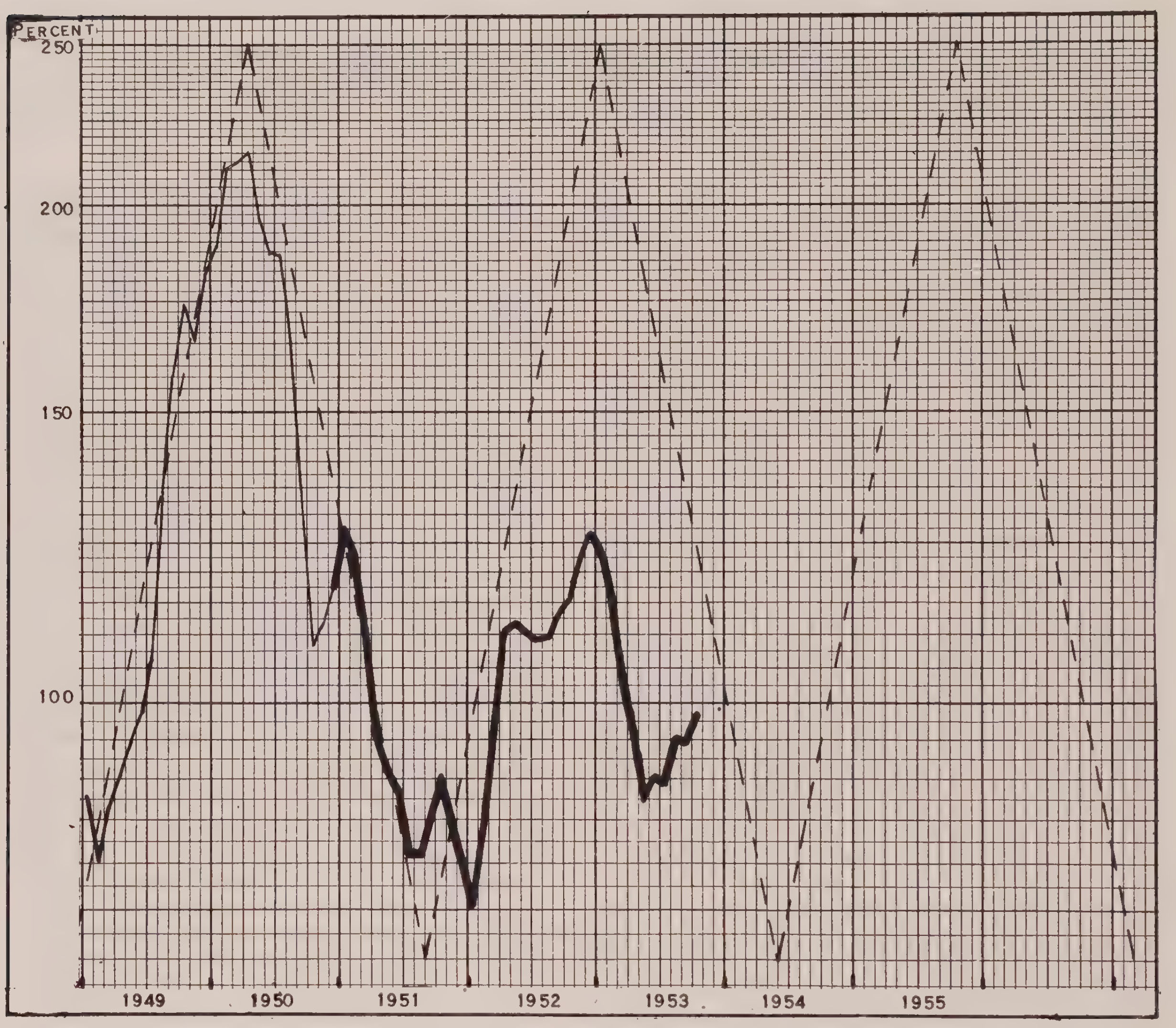
The broken zig-zag line shown in the chart extends and diagrams the projection of the 33-month cycle which these men made *15 years ago*.

In our report for April 1951, I showed you how this cycle had worked out through December 1950. You can see the behavior charted by the this solid line from January 1949 forward. This line represents the 12-month moving percentage of the F. W. Dodge Corporation's valuation of residential building construction contracts awarded in 37 states, smoothed by a three-month moving average. The heavy line from December 1950 through October 1953 shows you how this cycle has worked out for the 34 months for which additional figures are now available.

As you can see, the low of the last cycle came in January 1952, 4½ months after the ideal time. The high of the current cycle came in December 1952, one month ahead of perfect timing. It almost makes you believe in cycles, doesn't it?

The next low is due ideally between May and June of 1954. I do not know whether it will come early or late. To get light in regard to this matter, we would need to know something about the other cycles also present in this series of figures—a subject which, so far, I have not had time to investigate. *E.R.D.*

For the chart referred to, please see the next page.



THE 33-MONTH CYCLE IN BUILDING CONSTRUCTION
as discovered by F. A. Pearson, W. I. Myers, and G. E. Brandow in 1939

Rate of change of residential building construction, January 1949—January 1952, together with a perfectly regular 33-month zigzag as projected in 1939 by Professors F. A. Pearson, W. I. Myers, and G. E. Brandow.

The curve represents a three-month moving average of the 12-month moving percentage of the F. W. Dodge Corporation's valuation of residential building construction contracts awarded in 37 states. The new figures which have become available since the report for April 1951 have been plotted by means of a bold line.

Letters

More Basic Cycle Work Needed

Dear Mr. Dewey:

When I was with a large New York advertising agency I hired a statistician who was a mathematical genius. One of his jobs was to project the sales of a nationally advertised cough medicine. He did this by basing his projection solely upon the sales curve. In other words he had projected sales merely by determining the mathematical probability of what direction the curve would go in during the succeeding five years.

I do not have to point out to you that this is an unsound method of determining future sales. A more practical method would be to measure current advertising effectiveness and then to determine the future increase or decrease in this effectiveness by projecting the influenza epidemic curves as plotted by Dr. Selwyn Collins, Chief Statistician of the U. S. Department of Public Health. One other factor must be taken into consideration... how aggressive the company's advertising policy might be each year.

I respectfully suggest that the Foundation seems to be following the thinking of my mathematical genius friend.

I seem to remember that the Foundation was formed by a group of scientists...men who were experts in their various fields and who had discovered that the motivating forces with which they worked were often rhythmic in character. They met somewhere in the neighborhood of the North Pole for the purpose of pooling their knowledge. They set up a foundation through which they could continue to exchange ideas and thus benefit from the discoveries of workers in other fields.

It seems to me, as an unimportant though very deeply interested member of the Foundation, that financial and industrial rhythms have been given undue emphasis. I think that you will agree with me that these rhythms are the result of more basic motivating rhythms, just as the sales curve of the cough medicine which I mentioned above was the result of influenza epidemics and advertising aggressiveness. I realize that the majority of your readers are probably more interested in the stock market than in any other subject about which you might write and I realize that both you and Mr. Vedder Hughey have been remarkably successful in analyzing and projecting stock market rhythms. I do not want to belittle this work as I fully realize its importance.

However, in my humble opinion the Foundation would make greater progress if it were to put less emphasis on what I consider resulting rhythms and give more thought to the natural forces which must be motivating all rhythms which we find in the field of economics. You once stated that the purpose of the Foundation was to study rhythmic fluctuations *per se*, to develop techniques of cycle analysis and to isolate cycles in all the 30 or 40 different branches of science where cycles are important. (I'm afraid that some of these branches have been neglected.) You went on to say that eventually when the Foundation has assembled enough facts it hopes to advance some theories in regard to cause and effect.

As you know, I have for some years been endeavoring to analyze the rhythms in this Company's advertising effectiveness curve. I feel that I have gone as far with this work as I can go until more information regarding the rhythms in nature is made available. My reason for this is that in plotting short term cycles of from 1½ to 3½ years I cannot differentiate between cyclical influence upon our advertising effectiveness curve and the influence of such other factors as advertising copy and media, competition, formula changes, etc. On the other hand, if I knew of the existence of certain natural rhythms which I suspect exist and are influencing this advertising effectiveness curve, I am confident that this information would be of value in helping me to analyze these rhythms more accurately.

In the summer of 1952 I sent you my analysis of what I considered to be the four principal rhythms influencing our advertising effectiveness curve. They are as follows:

1. 266-month rhythm. There is an amazing correlation between this rhythm and the double sunspot cycle. The enclosed graph shows a 9-year moving average of the sunspot cycle pushed forward two years and a 9-year moving average of our advertising effectiveness curve. In my opinion this is a health cycle...a 22-year epidemic of female ailments.

2. 72-month cycle. My guess is that this is a "business" cycle because you have found rhythms of this length influencing many types of businesses. It seems to be unrelated to our other three rhythms.

3. A 56-month cycle, which seems to be in a family group with the 266-month rhythm. Since reporting to you in 1952 I have done more work on this rhythm and now believe that peaks and troughs of this cycle coincide with the peaks and troughs of the 266. In other words, at every peak and every trough of the 266 we find either a peak or a trough of the 56...even if the 56 has to reverse itself to accomplish this.

4. The fourth rhythm I call Cycle E (erratic). Generally speaking it is 28 months. There seems to be the same relationship between this rhythm and the 266 that the 56-month cycle has with the 266. For this reason I believe the 266, the 56, and the 28 are a family.

My theory is that the effectiveness of this company's advertising is influenced by two cyclical forces. The first is the common 6-year business cycle which I am not endeavoring to explain because it seems to be present in so many businesses. I am content to accept the presence of this rhythm without attempting to discover what causes it. The other force is the family of three rhythms which I believe are related to sunspots but more specifically to the "cosmic rays" which emanate from those sunspots.

It seems logical to me that the principal rhythm or group of rhythms influencing the effectiveness of our advertising should be rhythms which influence health; and it also seems logical that the greatest influence upon health should emanate from the sun.

Dr. Stetson in his "Sunspots in Action" suggests the basis for this theory. According to Stetson there is some evidence that ultraviolet radiation from the sun varies with the sunspot cycle. Measurements have indicated that the intensity of ultraviolet light is as much as 30% stronger during sunspot maximum than during sunspot minimum. Ultraviolet light produces Vitamin D in plants and animals, causes secretions of endocrine glands and in the case of a pair of unresponsive monkeys in a London Zoo produces potentia coeundi.

Stetson reports that infrared light from the sun causes us to feel heat, that the heat from the sun is not constant but varies as much as 1% from time to time. Sunspots, presumably through some other type of "cosmic ray," upset the earth's magnetism, cause magnetic storms and upset radio and telephone communication. (We advertise on the radio. Sunspot interference reduces our radio audience and by so doing reduces the effectiveness of our advertising.) There seems to be a direct relationship between sunspots and weather and sunspots and the growth of trees. Finally, Stetson reports that rabbits are more numerous during sunspot minimum, more scarce during sunspot maximum. (It has been said that our Vegetable Compound has " a baby in every bottle").

About 8 years ago I wrote to the late Professor Ellsworth Huntington of Yale and asked him why, in his opinion, there seemed to be a correlation between the double sunspot cycle and "female ailments" and between the single sunspot cycle and the advertising effectiveness of a nationally advertised laxative. His reply stated in part, "I am inclined to think that your question as to what it is which causes constipation, 'female pain,' etc. cannot be answered until we know more about two things. The first is the general effect of the sun, not only upon the earth's temperature, humidity, barometric pressure and winds, but also upon ultraviolet light, atmospheric ozone, and electricity. The second point is the effect of these last three conditions upon the ductless glands, secretions, nerves, etc. of human beings."

During the past 8 years I have been waiting patiently for the Foundation to publish such information. I have finally decided that there might be a better chance of the Foundation's doing this if some one were to point out the practical value of such information.

Don't you think that in the long run our knowledge of economic, health, and other rhythms might be accelerated by the publication of rhythms of ultraviolet light and infrared light and other "cosmic rays" if, of course, such information is available. It seems to me that these are the basic motivating forces that we should start with if we are to fully understand *and predict* the familiar economic rhythms. To paraphrase Newton's third law of motion, "For every reaction (economic, rhythm, epidemic, etc.) there is an equal action (motivating force)." This statement is axiomatic in physics and it must be of equal importance in the science of cycles.

Sincerely,
Charles H. Pinkham
Lydia E. Pinkham Medicine Company,
Lynn, Massachusetts.

In Reply I Said:

Dear Mr. Pinkham:

I enjoyed your recent letter.

I agree with you fully that the Foundation should devote more time and attention to fundamental research. We do not need anyone to point out to us the ultimate practical value of such information (but we are always glad to have them do so notwithstanding). What we do need is someone to supply the money so that fundamental research of the sort you describe might be possible.

We have no endowment. For the conducting of our operation, we are solely dependent on dues and contributions from members, receipts from the sale of publications, and any surplus we might have from research work done on a fee basis.

Our largest single source of revenue consists of dues from members. This source of income would quickly dwindle if we were to give more attention to the other 35 disciplines.

If you or some of your friends provide the necessary funds, we will jump wholeheartedly into a study of cycles in natural phenomena.

On the other hand, even if we had unlimited funds and complete freedom of choice as to subjects for study, we would still give a large share of our attention to economic data.

That is, although I fully agree with you in regard to the desirability of the study of natural science figures—and we would make many more studies of the figures if we had the funds—the studies we do make of economic time series have a bearing on the fundamental problem. That is of much more importance than many people realize.

The economic figures are available over long periods of time and, in contrast to most natural science figures are available on annual, monthly, weekly, and even daily bases.

For example, in contrast to figures for the thickness and thinness of rock strata and tree rings and the abundance of animals note the usefulness of daily stock market figures.

Thus in isolating a 6.41-month cycle in the stock market for the past 80 years and knowing that it really is 6.41 and not 6.40 or 6.42, basically we are contributing to our observations as much as we would if we had studied a series of annual figures, 12 times as long. In other words, although your suggestion is to the point, we are not as bad as we might seem on the surface.

Ever cordially yours,

Foundation Affairs

A PICTURE OF YOUR DIRECTOR

A number of people have written in saying they would like to know what I look like.

It is therefore with pleasure that I print herewith my latest photograph. I am the handsome fellow to the left. The lady is my wife. We are overlooking some of the hills of Western Pennsylvania.

E.R.D.

EXCERPTS FROM

CYCLES

THE SCIENCE OF PREDICTION

(CHAPTER IX)

by EDWARD R. DEWEY
Director, Foundation for the Study of Cycles

and EDWIN F. DAKIN
Associate, Foundation for the Study of Cycles

TOGETHER WITH 1954 SUPPLEMENT

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IX

The 18-Year Rhythm

THE 18–YEAR rhythmic cycle has been calculated to have an average length of around 18⅓ years. It is hardly to be regarded as a doubling of the 9-year rhythm we have already seen in action. It shows up for the most part in an entirely different series of categories. Figure 1 shows it in the index for real estate activity in the United States, after adjustment for trend, as compiled by Roy Wenzlick. Figure 2 shows it in building activity, according to the Warren and Pearson composite index. All building activity timing mentioned hereafter in this Chapter refers to this particular index. Choice of another index might slightly advance or retard the timing. However, no matter what index be used, this 18-year rhythm seems one of the clearest, most regular patterns revealed in our economic life.*

The existence of a similar rhythm in the marriage rate (see Fig. 3) could readily lead to some false assumptions. It would be simple enough to reason that people who get married start to think about house hunting and home building, and that this results in building projects. Or one could start his reasoning in reverse, and end in the same place, by saying that building stimulates prosperity, and when people feel prosperous they get married, and when married they buy the homes that contractors have previously erected to attract customers who feel prosperous because money is being spent to erect buildings for people who will get married.

Such reason-why arguments chase their tails. Nor is this statement of them unusual, except in brevity. Whole books have been written that incorporate such " reasoning " into learned syllables. We should be prepared to ignore reasoning of that kind, but we are justified in asking *why* our building statistics should formulate themselves in such exceedingly regular rhythms. Before research of the future supplies us with a definitive answer to this particular query, we may hazard a postulate that man's mating instinct and man's building instinct may be aboriginally associated in his being, just as they extend down the biological scale to the birds. If both instincts proved to flow in the race in a common rhythm, it should not seem too surprising. Perhaps economists could well join forces with biologists in the new kind of research such a problem suggests.

The 18-year rhythm is evident not only in real estate activity, new building, and the marriage rate, but has even shown up in acreage planted to wheat (see Fig. 4.)

As far back as the eighteenth century, which is about as far as available statistics on the subject go, we can see traces of this 18-year rhythm at work. H. A. Shannon, for instance, published in 1934 the results of research on the number of bricks produced in England and Wales from 1785 to 1849; since bricks were then taxed, records

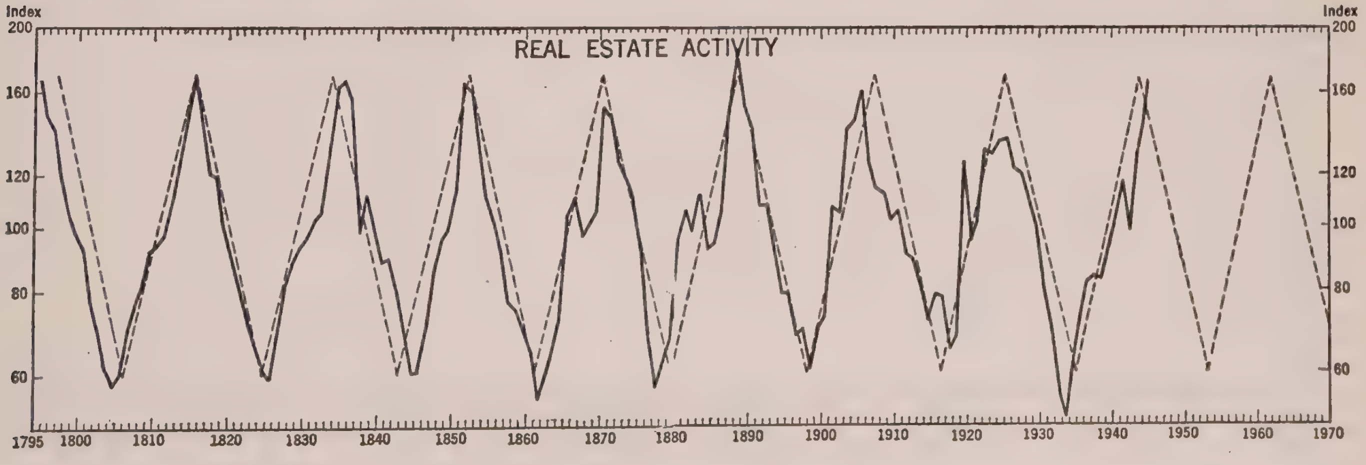

FIG. 1. THE 18⅓-YEAR RHYTHM IN REAL ESTATE ACTIVITY

Real estate activity in the United States, 1796–1946 (after Roy Wenzlick in the *Real Estate Analyst*). Data are for January of each year. A regular 18⅓-year cycle has been added and projected to 1970, to show in a general way what will happen if this rhythm continues. *Ratio scale.* Ideal tops fall 1888.6, 1907.0 (i.e. June 30, 1907), 1925.3, 1943.6, and 1962.0; lows 1897.8, 1916.2, 1934.5, 1952.8, 1971.2.

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* Clarence D. Long, Jr., who has made one of the most extensive studies of this rhythm, declares: "At first consideration, it may seem that considerable variation exists even in the United States between the duration estimates of various writers. Actually, the cycles themselves vary over time, and the variations (in estimates) are due to differences in the period of time studied. The closest approximation is probably the one-hundred-year study of John Riggleman, which places the average duration for the entire six cycles at seventeen years and for the last three cycles at slightly more than eighteen years. . . . It might be supposed that the industry in each locality would have great individuality. . . . Actually, although such individuality exists, long cycles do appear in all cities and the agreement of the turning points of these cycles is surprisingly high, especially with respect to the troughs." (*Building Prices and the Theory of Investment,* Princeton University Press, pp. 145, 159.)

were kept. Warren and Pearson, interpolating population data, drew the chart shown in Fig. 5 to illustrate the production pattern. A distinct 16- to 18-year rhythm is shown. Building statistics for a given circumscribed area, such as a particular city, do not always reveal the same rhythm. Glasgow, Scotland, for instance, has had a building cycle of around 30 years in length since the middle of the last century. London's cycle in recent times seems to have been around 25 years. In Hamburg, on the other hand, the rhythm formerly proximated the length of that in the United States (see Fig. 6).

American cities vary as between themselves; in some the 18-year rhythm is not so evident as in others. Further, areas where the rhythm is pronounced may show a difference in timing of peaks and valleys. In Florida, for instance, peaks have tended to precede New York peaks in recent times. But on the whole, as Long pointed out, there has been remarkable agreement. Here we shall be concerned only with national averages.

The length of time between peaks in over-all building activity in the United States has varied from 16 to 19 years; the 18-year span is an average. The peak of the twenties was reached in 1925; that of the forties seems to have come in late 1942, in which wartime year total new construction, public and private, amounted to some 13.5 billion dollars. Building costs and rentals, incidentally, tend to stay up for periods well after building activity has started to decline.

Strangely enough, in the face of a cycle that is so regular, so clear to the eye on any chart, and so often repeated that there can be no reasonable doubt of its reality, few businessmen refer to it in their operations, and neither does the home-buying public. Thus many of the foreclosures of the depression in the thirties were the aftermath of properties bought at top prices between 1925 and 1929. We shall perhaps see similar foreclosures in the fifties on realty bought at inflationary prices in the forties.

The small operators are not the only ones readily caught in the snares of the nest-building urge when the rhythm rises to its peak. Warren and Pearson have compiled records to show that, in large cities like Chicago and New York, most of the skyscrapers have been built just at the top of building booms. Most of them, in consequence, had to stumble through a subsequent depression carrying vacant offices that were never occupied until the next cycle came along to produce the necessary tenants. Meanwhile many of the buildings went through what specialists call the "wringer." The findings are illustrated in Figs. 7 and 8.

From these two charts, one might conclude that in the twenties Wrigley was one of the shrewdest operators in Chicago. In New York, one of the best judges of the market in the early thirties seems to have been Rockefeller, who built Rockefeller Center almost at the bottom of the building cycle, and then cashed in as the rising demand for space took every square inch available in the Center during the recovery period in the late thirties and the forties.

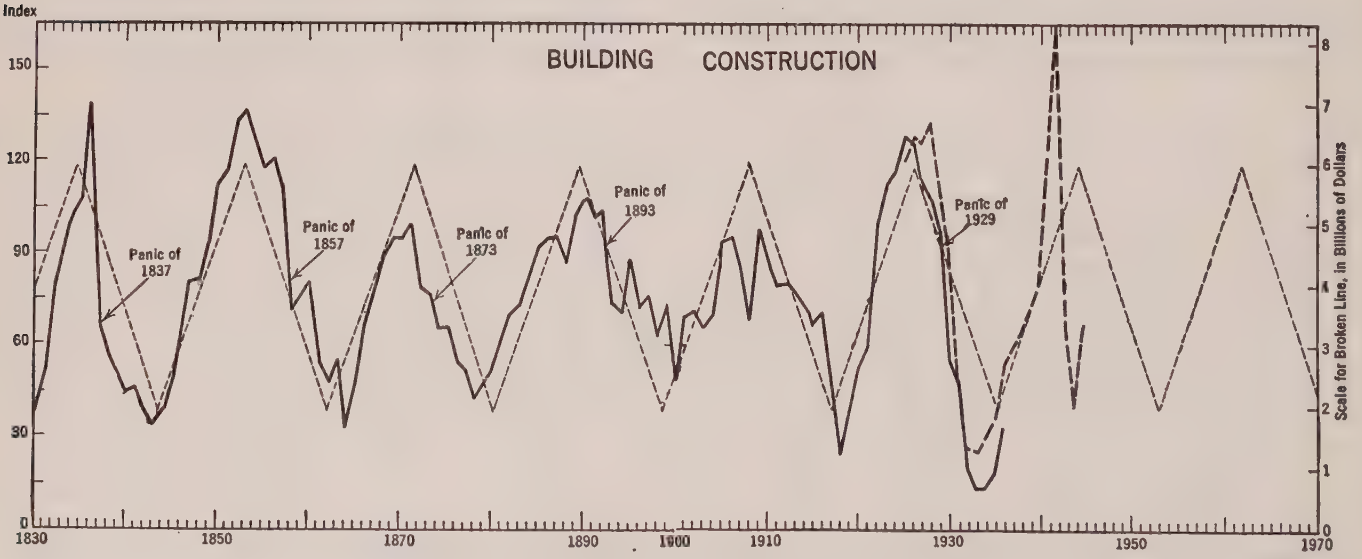

FIG. 2. THE 18⅓-YEAR RHYTHM IN BUILDING ACTIVITY

Building activity in the United States, 1830–1936. The Composite—Riggleman, Wenzlick, and 120-City-Index of building activity. (After Warren and Pearson.) Value of construction contracts awarded in thirty-seven states, F. W. Dodge Corporation, 1925–1945. A regular 18⅓-year cycle has been added, and projected to 1970 to show approximately what will happen if this rhythm continues. Pattern has tops 1834.3, 1852.6, 1871.0 (i.e. June 30, 1871), 1889.3, 1907.6, 1926.0, 1944.3, 1962.6; lows halfway between at 1843.5, 1861.8, 1880.2, 1898.5, 1916.8, 1935.2, 1953.5.

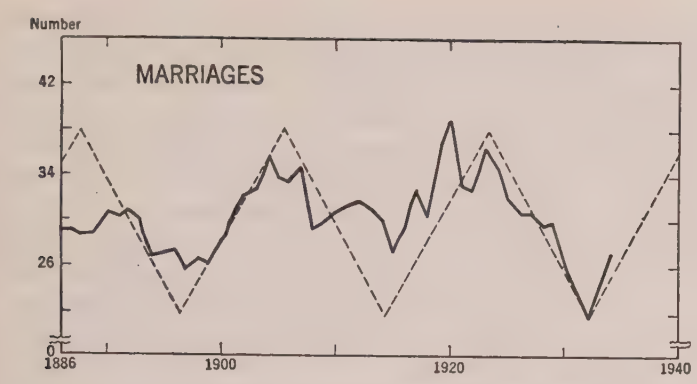

Fig. 3. The 18⅓-Year Rhythm in Marriages

Marriages per 10,000 adult males in greater St. Louis, 1886–1934. (After Warren and Pearson. Data by Roy Wenzlick in the *Real Estate Analyst.*) A regular 18⅓-year cycle has been added.

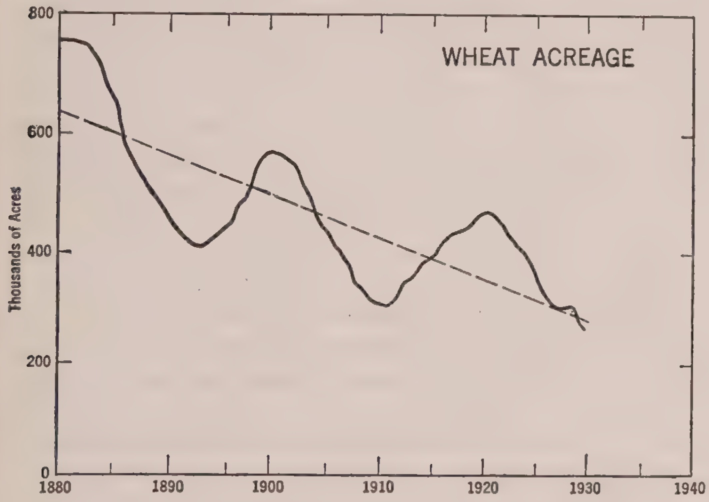

Fig. 4. The 18⅓-Year Rhythm in Wheat Acreage

Acreage planted to wheat in New York, 1880–1930. (After Warren and Pearson and King.)

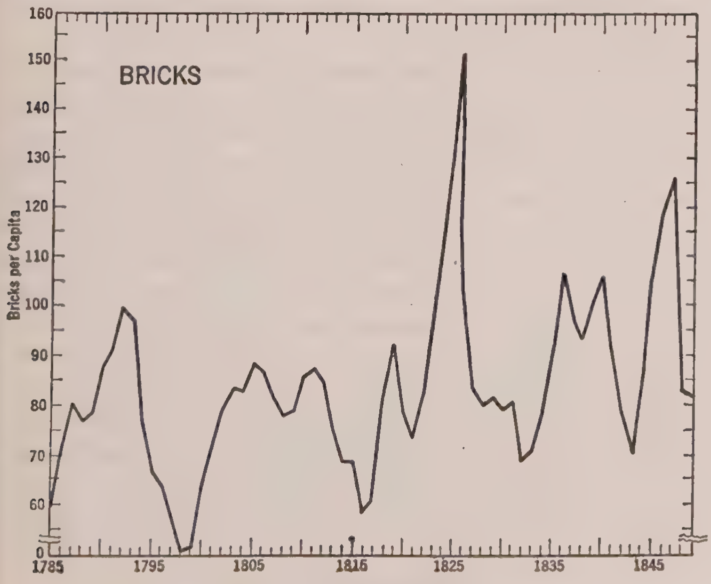

Fig. 5. Brick Production

Bricks produced per capita in England and Wales, 1785–1849 (after Warren and Pearson).

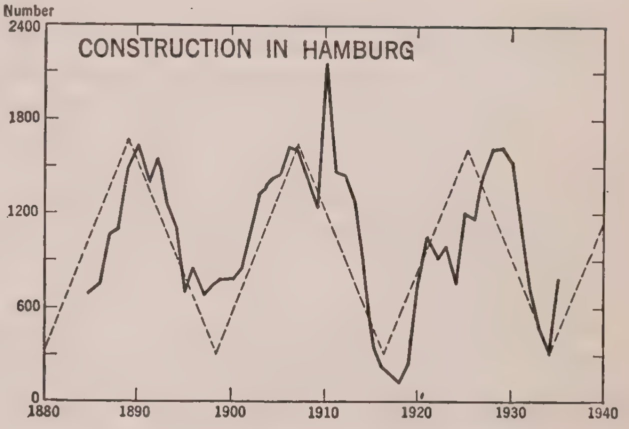

Fig. 6. Building Construction in Hamburg

Total number of new buildings constructed in the city of Hamburg, Germany, 1885–1935.

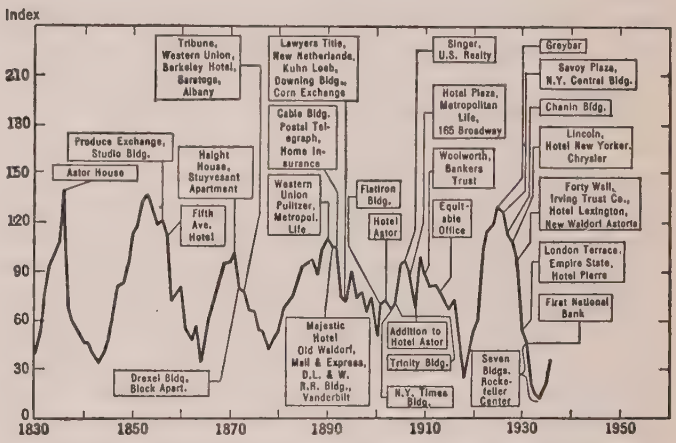

Fig. 7. New York Skyscrapers

Dates when certain large buildings were constructed in New York City and the Composite — Riggleman, Wenzlick, and 120-City-Index of building activity 1830–1936. (After Warren and Pearson.)

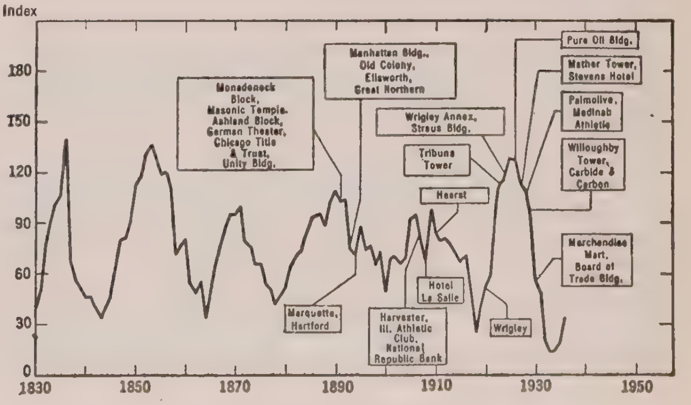

Fig. 8. Chicago Skyscrapers

Dates when certain large buildings were constructed in Chicago and the Composite — Riggleman, Wenzlick, and 120-City-Index of building activity, 1830–1936 (after Warren and Pearson).

There has been an obvious explanation offered for the building of so many of our skyscrapers at peak prices in time of peak activity. That is the time when they can ordinarily be most easily financed. But why investors and bankers should be so eager to risk their money at the very time the risk becomes unduly heightened is a mystery our statistics do not explain.

The pattern of our recurrent building booms has been so similar for many years that its repetition seems almost routine. The entrance of government into building activity has not discernibly changed the pattern.

The 18-year rhythm, falling from 1925, reached its low around 1933, and left such a wake of foreclosures in the nation that, in the depths of the depression, incipient rebellion was abroad in the land. In parts of the Middle West, for instance, farmers actually banded together to use force against sheriffs entering with writs. Auction sales of foreclosed properties had their purpose defeated by the refusal of attending visitors to bid. Refusals to pay taxes were common. Before such rebellion could become a challenge even to federal authority, there was organized a series of credit aids to save farmers and defaulting homeowners, together with the banks and insurance companies which had invested heavily in mortgages.

When, after 1933, a certain degree of stabilization in the situation had been established, the renewal of building activity at the start of the next cycle was launched largely on government funds. The upturn in building came almost exactly in accord with the rhythmic pattern. Whether or not such a renewal of building enterprise would have begun without the aid of government is a subject only for academic speculation. There was no great upsurge in the building of industrial plants, office buildings, and commercial structures. But on the strength of large government funds, made available for lending to the builders of homes, the new cycle got under way, and the home-building activity conducted in it was largely under government control.

The government continued control of the financing — even after the time when the banks would have been glad to enter the mortgage market again — by offering terms more favorable than the banks had traditionally extended. By controlling the financing, it was simple for the government also to maintain control of the cost, the planning, and even the architectural design of the houses built with Washington aid. Additional public funds invested throughout the country, in public works like new government buildings and gigantic enterprises such as great dams and power plants, carried the total volume of building steadily forward from its previous depression lows.

This was the situation as building activity mounted toward new peaks until approximately 1940, after the outbreak of the war in Europe. At this time there was still an abundance of commercial building space available in most parts of the country.

The American government then decided that vast expansion in American manufacturing facilities must be rushed. But industrial leaders in general hesitated to invest large funds in expanding plants for war purposes, only to be left in postwar days with an investment on their hands that might then be worthless. The government, on the theory that national defense needs were vital, promptly devised measures that would permit industrial plant expansion with a minimum of private investment. If an efficient industrial operator showed willingness to borrow or invest funds for construction purposes, he was permitted to amortize his investment out of profits at a rate far more rapid than previously permitted under income tax laws. Where industries showed reluctance to borrow even under these terms, the government itself built vast industrial plants which were leased to operators, with or without option to buy.

As a result of such measures, government funds invested in industrial plant facilities from 1940 through 1943 amounted to a total of some 25 billion dollars. When the United States actually became involved in war at the end of 1941, building of homes and farm structures had to cease almost entirely, under government decree — the famous L–41 regulation of the War Production Board. The chief exception to cessation of home-building was the hastily built housing erected for war workers in plant communities. But the continuing boom in industrial construction carried total American building activity steadily forward into new highs.

The peak of this activity seems to have been reached in the third quarter of 1942 — about two years ahead of the " ideal " peak in the 18-year pattern. Total new construction, public and private, declined from 13.5 billion dollars in 1942 to 7.7 billions in 1943, 3.9 billions in 1944, and around 4.7 billions in 1945.

As the nation was drawn into its economic organization for war, the needs of government for land were intensified also, and great areas were taken over for purposes connected with wartime production and military training. The outcome was that in July of 1944 a Public Lands Subcommittee of the House of Representatives could announce that 24 per cent, or almost one-fourth, of all the land in continental United States was owned by the government. The figures of course include national park areas, as well as mountain and desert wasteland.

We may expect continued efforts, in postwar years ahead, to return to private ownership some part of these landholdings and also a good part of the wartime industrial facilities which the government acquired. But whether this happens or not, it is worth repeating that government operations apparently do not alter the rhythms prevailing in a nation's economic life. Government under takings seem rather to follow the rhythms. The fact that government, by the sheer weight of its holdings, may now be said to control a good part of the American real estate market and the activities of the building industry does not necessarily indicate any change in the 18-year real estate cycle.

This has important implications for those who have advanced the theory that government planning, and timely government action, may be used to overcome cyclic depressions. In view of such a hope, the course of real estate activity in the United States during the immediate postwar years becomes a matter of challenging interest to all concerned with theory in national planning projects.

As already stated, statistical downturn in building in late 1942 came some two years prior to the turn called for in the established pattern. A prior judgment based only on the projected pattern would have declared that, from 1944 on into the fifties, building activity would do exactly this, gradually declining toward a bottom due around 1953.

On the other hand, by the end of World War II swollen mass incomes had created the same enormous demand for new housing, and for office and loft space, that had been experienced following World War I. By 1946 the nation was conscious of an overwhelming housing problem that seemed quite comparable to the one it had experienced in 1919 and the early twenties. Those who based their 1946 judgments on events following World War I, when a building boom promptly got under way and lasted for years, would naturally assume the inevitability of a similar great expansion in American building activity in the years following, and a boom in the building industry that would last — once under way — almost indefinitely.

Will government attempts to use all possible measures in promoting new housing succeed in duplicating, after World War II, the building boom that followed World War I? Those who look back from the fifties will know the final answer. For the present, we must content ourselves with noting that the 18-year rhythm was just near the beginning of its cyclic rise when World War I ended. The rise in the pattern extended through 1925. The building boom which rode this rising rhythm with increasing momentum lasted well through 1929, when the total of new construction, public and private, amounted to some 10.7 billion dollars.

To have told the average man in early 1946 that no similar boom was probable following World War II would have seemed fantastic prophecy. The need of housing seemed enormous all over the country. Economists talked about millions of purchasing power available. The fact remains that projections of the 18-year rhythm seemed to say, long before the war, that the over-all real estate market in the United States after World War II would find itself in a situation hardly comparable to that which it knew after 1918.

We can of course expect a large amount of building in this country in the late forties — this country engages in vast building operations in "abnormal" as well as in "normal" times.* There is a minor rhythm in residential building of 33 months (see Fig. 1, next chapter) which suggests that home building will rise to another peak around 1948. Projections of our 18-year rhythm merely suggest the probability that over-all building operations will not reach the scale some observers have forecast; that they will in general be declining, irregularly, from the 1942 peak; that they will reach a postwar low in the early fifties.

The 18-year rhythm is found not only in our building and real estate activity. It evidences itself in the activities of many industries whose operations are allied to those of the building industry. The construction industry, using the products of heavy industry, follows a pattern related to all enterprise, and full employment in production and distribution in other industries usually occurs only when building activity is at high levels.

Not only is building activity reflected in the volume of carloadings, for instance; it is also interesting to note that railroads have done most of their construction work at times when other building was active.

Figure 9, adopted from Warren and Pearson, indicates a close association between building activity and deviations from the normal trend in pig iron production. That this 18-year rhythm should show up in pig iron, on top of the 9-year and 3½-year rhythms, can hardly surprise us.

The volume of lumber production and of furniture produced moves with, and lags slightly after, the index for building activity — an association we should find natural. In the past, total loans and discounts of American banks have also tended, with variations in volume, to move with the 18-year rhythm in building, with a lag of around three years (see Fig. 10).

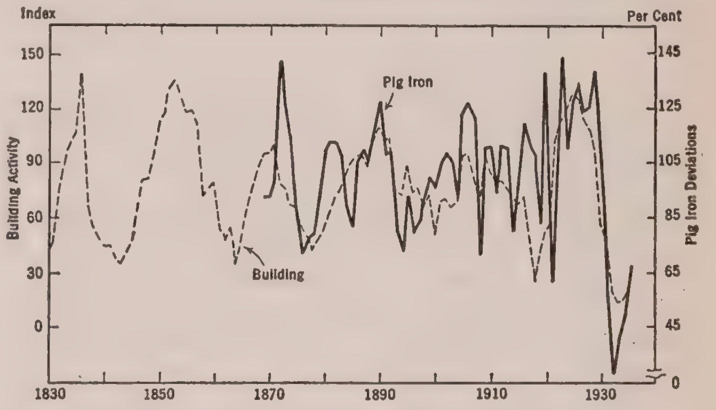

FIG. 9. PIG IRON

The 18⅓-year rhythm in pig iron production, 1870–1936. Data expressed as deviations from normal trend. The Composite — Riggleman, Wenzlick, and 120-City-Index of building activity, 1830–1936 has been added. (After Warren and Pearson.)

Similarly, prices of common stocks have tended in their major swings to move with the building rhythm (see Figs. 11–12–13).

The 18⅓-year rhythm, as it shows itself in the sales of a large industrial company, is charted in Figure 14.

The building cycle movement, as compared to that of industrial stock averages, has been interpreted by Warren and Pearson as follows:

> Prices of industrial stocks appear to rise in the early part of the building cycle, then fall and rise again. This may be because recovery in clothing, automobiles and other things with a short cycle combine in

---

* Even in the war years, for instance, private construction totaled some 2.8 billions in 1942, 1.6 billions in 1943, 1.6 billions in 1944, 2.7 billions in 1945.

such a way as to form a minor peak before building is proceeding actively, and then reach another peak about the same time as building.*

Further research in this field seems to indicate that the phenomena referred to here by Warren and Pearson appear as the 9-year rhythm " rides on the back " of the 18-year wave.

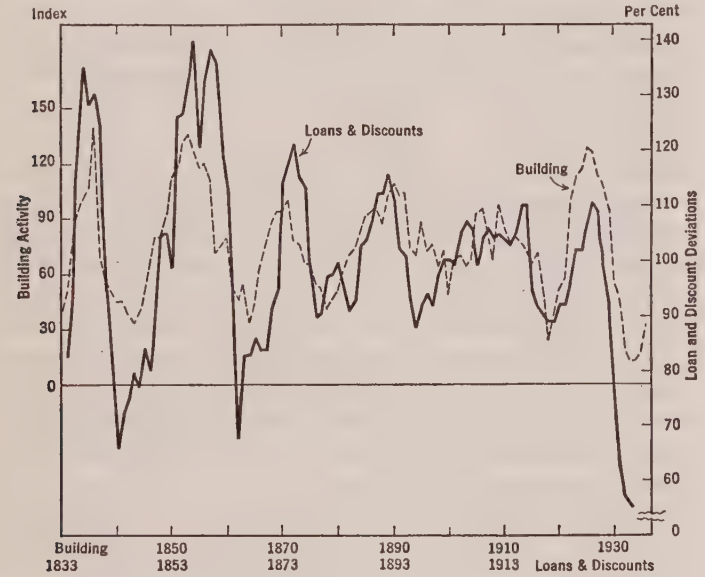

FIG. 10. THE 18⅓-YEAR RHYTHM IN LOANS AND DISCOUNTS

Variations in the volume of loans and discounts, 1833–1936, expressed as a percentage of normal, and set back three years to correspond with the Composite — Riggleman, Wenzlick, and 120-City-Index of building activity, 1830–1936 (after Warren and Pearson).

Most important, we find a tendency in major panics to date themselves by turns in the rhythms of building activity. Usually the panics have come within two to four years after the building activity peak. The 1836 peak was followed by panic in 1837. The 1853 peak was followed by panic in 1857. The peak around 1871 was followed by panic in 1873. The 1890 peak was followed by panic in 1893. The 1906 peak was followed by panic in 1907, albeit a brief credit panic of no great length or severity. The peak of 1925, on the other hand, was followed in 1929 by the most severe panic in our history, and long depression afterward. It will be interesting to observe whether the precedent holds, and whether the peak in building activity reached in late 1942 will ultimately be followed by comparable events. As Warren and Pearson have pointed out:

> When it is apparent that a building peak has been reached, it is a warning of the danger of a serious reaction. If there is also an impending rise in the value of gold, the danger is accentuated.*

And they continue, in an analysis which makes it clear that the 18-year rhythm is one of the most important economic clocks we have:

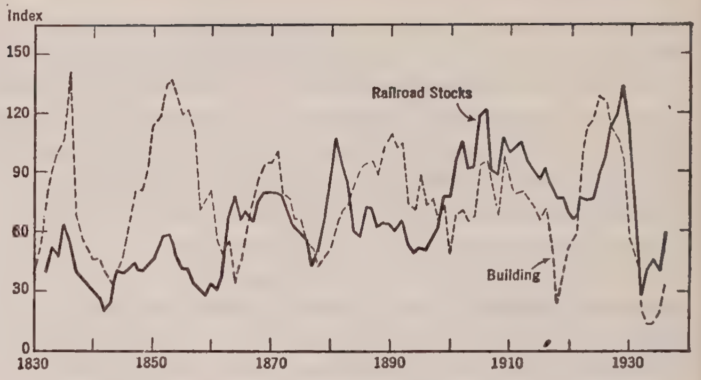

FIG. 11. THE 18⅓-YEAR RHYTHM IN RAILROAD STOCK PRICES

The Cleveland Trust Company index of price of railroad stocks and the Composite — Riggleman, Wenzlick, and 120-City-Index of building activity, 1831–1936 (after Warren and Pearson).

> The building cycle is so long that few people experience two complete cycles in their business life. Education, to be effective, must therefore be " book knowledge " rather than experience. . . .
>
> For many individuals, an unfavorable first experience means a lifetime tragedy. The experiences of the last fifty years have emphasized the dependence of the individual and the nation on price movements . . . price movements are important to the individual regardless of his monetary theories. The next most important factor is the building cycle. These two forces are the major factors in business.
>
> The welfare of an individual is often determined by the time in which he was born. If he is old enough to start business at the low of a building cycle, which is accompanied by a falling value of gold and rising prices, his chances for success are very good. Conversely, if he is

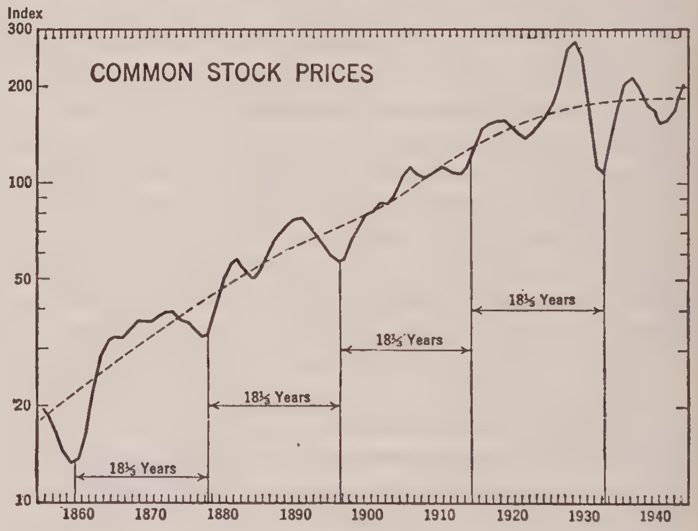

FIG. 12. THE 18⅓-YEAR RHYTHM IN COMMON STOCK PRICES

Three-year moving average of the Axe-Houghton index of common stock prices in the United States 1854–1945, together with an 18-year moving average trend extrapolated. The 18⅓-year lows are clearly in evidence.

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* Reprinted by permission from *World Prices and the Building Industry* (p. 145), George F. Warren and Frank A. Pearson. Published by John Wiley & Sons, Inc.

* *Ibid.*, p. 150.

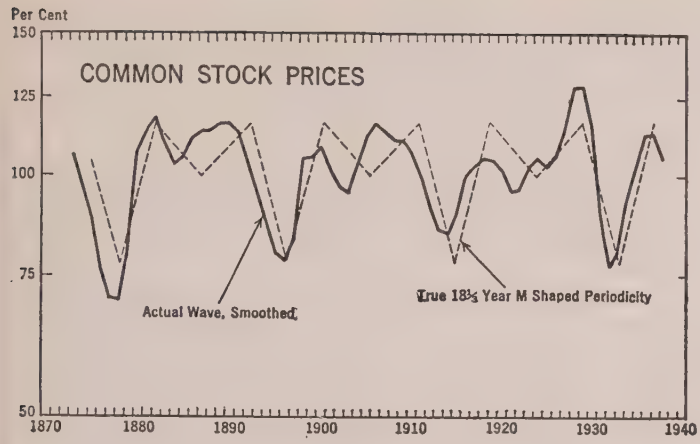


FIG. 13. THE 18⅓-YEAR RHYTHM IN COMMON STOCK PRICES

Percentage deviations of the 3-year moving average, Axe-Houghton index 1854–1939, from the 18-year moving average trend (extrapolated) and smoothed by a two 18-year section moving average plotted to the second section, together with a regular M-shaped 18⅓-year cycle.

The irregularities of the highs are to be explained by the concurrent presence of a 9-year rhythm. (See Chapter VII.)

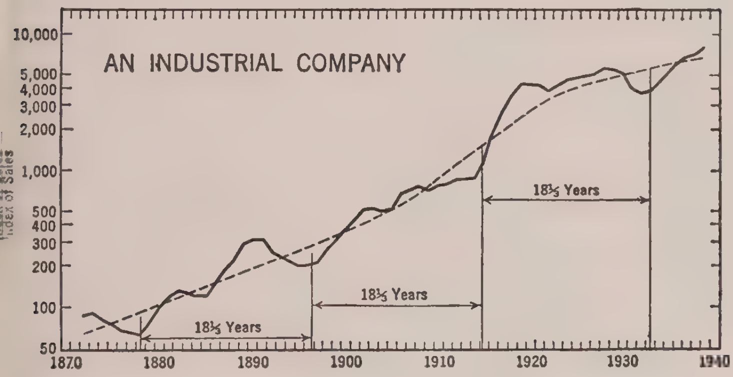


FIG. 14. THE 18⅓-YEAR RHYTHM IN THE SALES OF AN INDUSTRIAL COMPANY

born at such a date that he starts in business at the peak of a building cycle, which is accompanied by falling commodity prices, his chances of success are small.

Much of the success or failure of an individual is due to forces over which he has no control; but if he understands these forces, he may protect himself from the worst results of unfavorable combinations and profit personally from favorable combinations.*

Clarence D. Long, Jr., whose study of the American building cycle is a landmark in research, notes that " cycles in building since 1900 were about a third more severe than before," and declares:

> Four great waves in the construction of new buildings have occurred since the Civil War and it is not too much to say that their turning points mark the most exciting and memorable episodes in the nation's history.†

Professor Long, as part of his research, examined all possible explanations for the consistent rhythm and characteristic length of the cycle, and ended with the conclusion:

> We are left, therefore, with only the psychological feeling on the part of business men concerning the life of assets in a " progressive business." In a new country such as the United States, " psychological life " would be shorter and replacements would recover sooner, than would be true in old and mature countries. This may account for the shorter building cycles in this country than in Europe.‡

We have seen that this 18⅓-year rhythm is important not only in real estate and building, here and abroad, but in marriage, pig iron production, wheat acreage, loans and discounts, railroad stock prices, and in the prices of industrial common stocks. Fig. 14 shows it in the sales of a typical manufacturing company as well. Later in the book we shall meet it again.

* *Ibid.*, pp. 174–177.

† *Building Cycles and the Theory of Investment,* Clarence D. Long, Jr. (Princeton University Press). Page 150.

‡ *Ibid.*, p. 165.

1954 POSTSCRIPT TO CHAPTER IX

LIKE other cycles we have been considering, the 18-year rhythm is not a simple affair. Evidence is piling up that, in studying cycles of this order of magnitude, we are dealing not with one, but with several different cyclic forces.

The evidence supporting the concept of "18-year" cycles has piled up during the ten years that have elapsed since Chapter IX was written. Not only have cycles of this order of magnitude been discovered in many additional phenomena, but they also have been uncovered over much longer periods of time. On the other hand, it is becoming increasingly clear that not all of the "18-year" cycles are of the same length.

It might be well at this point to print for you the results of some of the additional research in respect to 18-year cycles.

1. A 19.4-year cycle in **railroad stock prices** is clearly evident, 1831 to date.[1] It is diagrammed below as Fig. 1.

2. A 17 3/4-year cycle in the liabilities of commercial and industrial **failures** in the United States, 1857-1953, is clearly evident.[2] It is diagrammed below in Fig. 2.

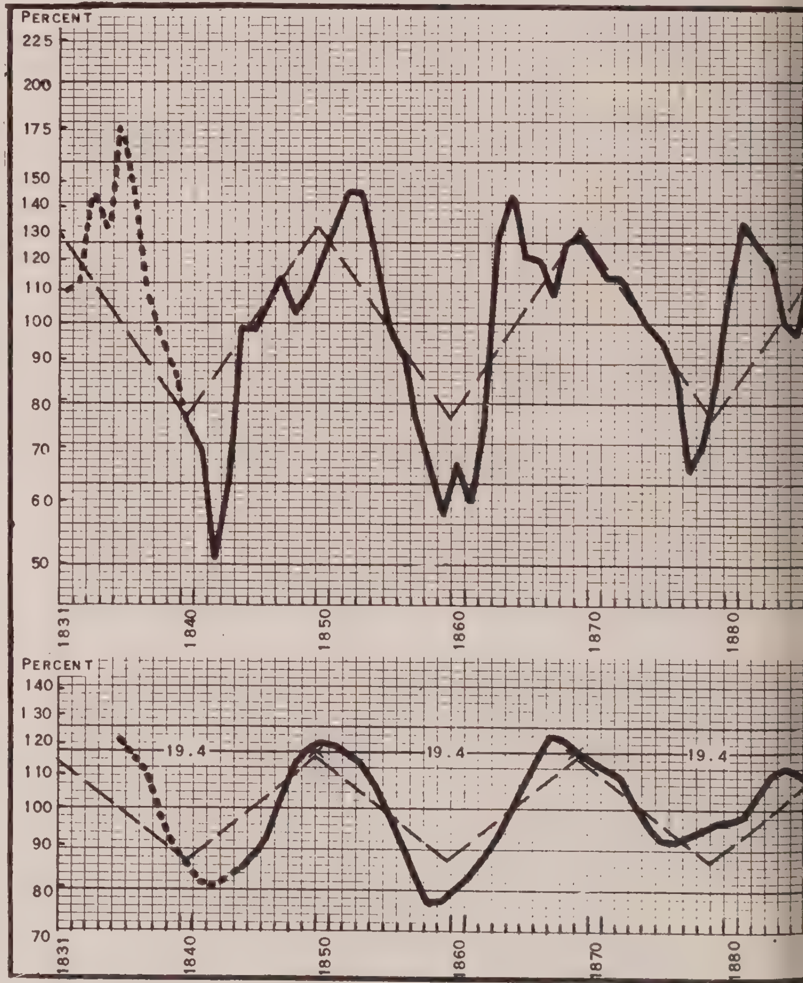
3. A periodogram of **pig iron prices** which I published for you in the June 1952 issue of *Cycles* shows a very important

THE 19.4-YEAR CYC

Fig. 1.

This curve shows railroad stock prices as a percentage of trend.

By eliminating trend from the figures you are able to see the 19.4-year cycle more clearly. To aid your eye I have added, by means of a broken line, an ideal 19.4-year cycle. This ideal cycle has been projected into the future to show the general course of railroad stock prices as a percentage of trend, if this cycle continues.



This chart shows the figures charted in the upper curve smoothed by means of a 9-year moving average. This smoothing eliminates the 9-year cycle also present in these figures, and enables you to see the 19.4-year cycle more clearly.

Here also I have added a series of ideal 19.4-year waves to guide your eye.

cycle about 17 3/4 years long.[3] I published a chart of this cycle in these prices for you in the Spring 1952 Journal.[4] It is reproduced below as Fig. 3.

4. A study of cycles of this general order of magnitude in the alternate thickness and thinness of Arizona **tree rings**, over a 798 year period, shows a very definite cycle of about 17 3/4 years in length present on the average at each third of the series.[5] A chart of this cycle as present from 1100 to 1365, 1366 to 1631, and 1632 to 1897 respectively is shown in Fig. 4 below.

5. **Sunspots** with alternate cycles reversed, after adjustment for the dominant 22 1/5-year cycle, clearly show a rhythm about 18 years in length.[6] See Fig. 5 below. (A discussion of sunspots with alternate cycles reversed will appear in Chapter X to follow.)

6. An 18 1/3-year cycle in the number of new **residential buildings** constructed is very clear from 1856 to date.[7] See Fig. 6.

7. A periodogram of **industrial stock prices**, 1871 through 1950, suggests cycles of 17 3/4 and 19 1/4 years respectively.[8]

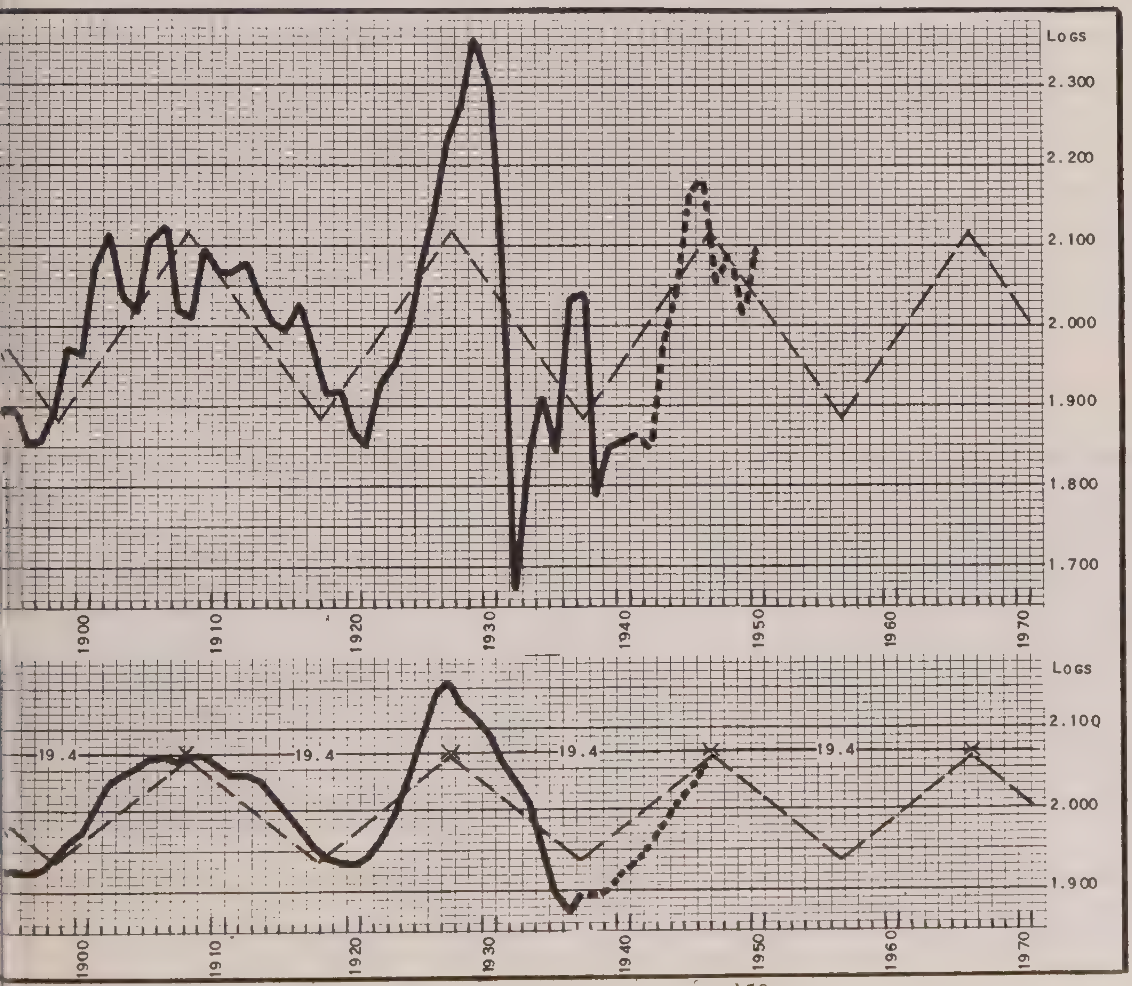
8. A periodogram of **cotton prices**, 1731-32—1939-40, shows clear cut evidence of a cycle of about 17 1/3 years in length.[9]

9. In a study of **wheat prices** in Europe from 1500 to 1869, Sir William Beveridge found cycles of 17.0 and 19.9 years respectively.[10]

10. Brunt found a 17-year cycle in **weather** (rainfall, temperature, and atmospheric pressure) in twelve European cities where records for at least a century are available.[10]

11. A 19 1/2-year cycle has been discovered in the advertising effectiveness of the Pinkham Medicine Company, but over so short a time (1906 to date) as not to mean anything.[11]

RAILROAD STOCK PRICES, 1831-1950



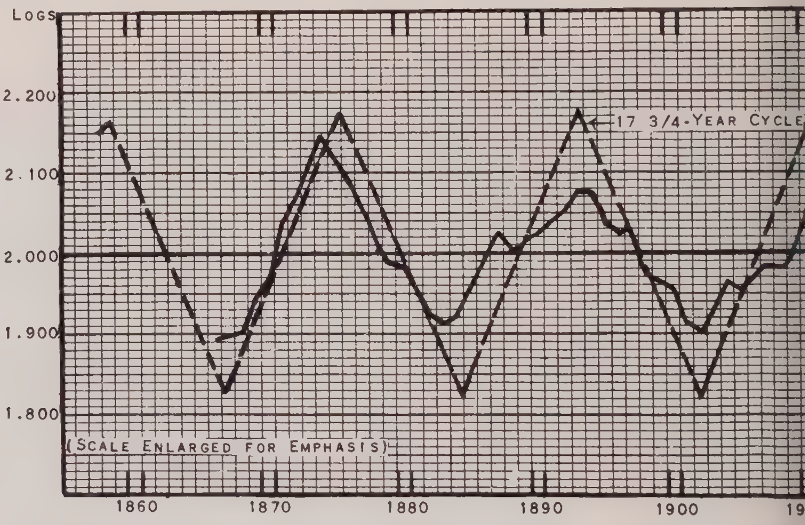
The above list of "18-year" cycles discovered during the past ten years shows the all-pervading nature of cycles of this general order of magnitude. But it shows with equal force that these cycles are not one and the same.

Some of the differences of cycle length may be due to distortion caused by random factors. For example, two phenomena might both be influenced by the same cyclic force—a cyclic force 18 years long let us say. In one instance however, random forces might fall in such a way as to make the first waves come early and the last waves come late. In that event the apparent or manifest cycle would measure a little longer than 18 years. In another instance the randoms might make the cycle look a little shorter, over the period for which figures were available. Of course if the series of figures is long enough, these random factors become unimportant. However the trouble is that the various series of figures are *not* long enough. The measurement of the *apparent* or *manifest* cycle can be as accurate as you wish, but such accuracy is specious when applied to the length of the *underlying cyclic force* that presumably created the rhythm.

On the other hand it is not possible to explain *all* the differences of cycle length in terms of random distortion. For example, if you have 162 years of figures, in each of three different phenomena, and find cycles of 17, 18, and 19 years in length respectively over that period of time, the 17-year cycle will lose a total of 9 years compared to the 18-year cycle—the 19-year cycle will gain a total of 9 years. Differences of this order of magnitude (a whole half of a cycle) cannot reasonably be attributed to random factors.

Another point needs consideration: Why is the figure of

Fig. 2. Business Failures—
17 3/4-Year Cycle.
The Deviations of the
of the 9-Year from the
18-Year Moving Average
and the Ideal 17 3/4-
Year Cycle



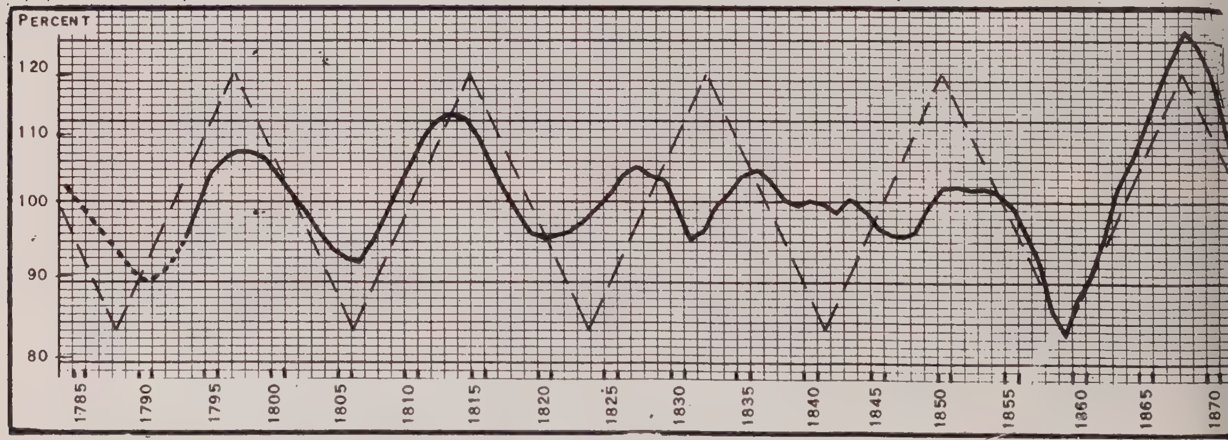


Fig. 3. Pig Iron Prices—17¾-Year Cycle.
Deviations of the 9-year moving average from the 18-year moving average, together with an ideal 17 3/4-year cycle shown by means of a zigzag line. Logs.

18 1/3-years so conspicuously absent from the later research, whereas in Chapter IX all the 18-year cycles were represented as 18 1/3-years long?

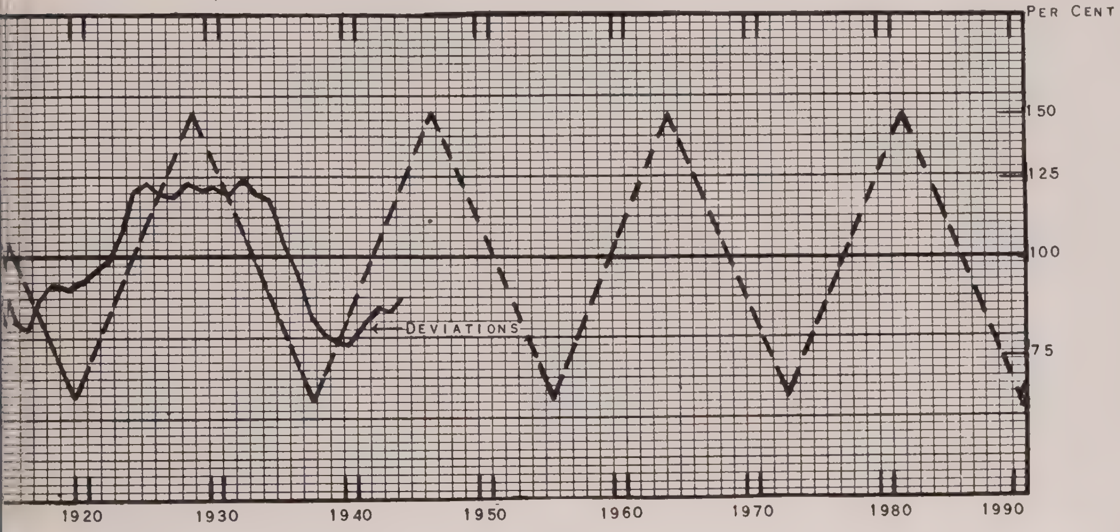
Ten years ago it was not realized that there were several different cycle lengths in the general neighborhood of 18 years. As the cycle in the long series of figures, such as real estate and construction, where more exact measurement was possible, seemed to be 18 1/3 years, it was assumed that the length in the various short series was 18 1/3 years long also. This was a reasonable assumption, but, like so many reasonable assumptions, it was probably wrong.

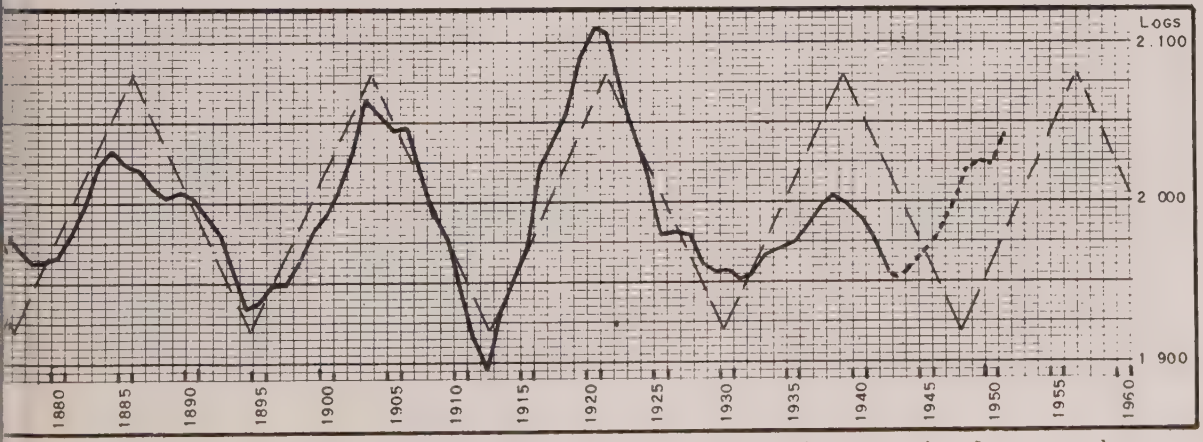
"All right," you say, "I see that, but why did the long series of real estate and construction figures show 18 1/3-year cycles and not 17 3/4-years or one of the other "18-year" lengths that seem to be so much more common?"

I do not know. It is one of the things we are trying to find out. The explanation may simply be that real estate and construction have one cycle length, other things another. Or there may be no 18 1/3-year cyclic *force* at all—the 18 1/3-*behavior* may be the result of compounding 17 3/4- and, let us say, 19-year cyclic forces. Similarly there may be no 17 3/4-year cyclic force. The 17 3/4-year *effect* may be the result 17 1/3-year and, let us say, 18 1/3-year cyclic forces. As yet we simply do not know.

Finally the old question comes up, are the cyclic forces *external* to the various systems involved--something like sun spots for example,--or are they internal, the results of the dynamics of various phenomena. This subject will be discussed in a later chapter.

Regardless of its exact length, or whether it is one or



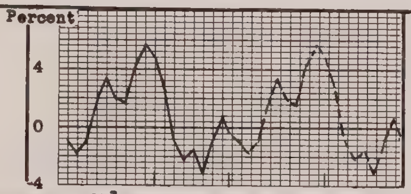


The ideal 17 3/4-year cycle has been projected into the future to show in a general way what will happen if this cycle continues.
The last trough in the ideal cycle occurred at 1948.1 The next crest is due at 1957.0 (January 1, 1957)

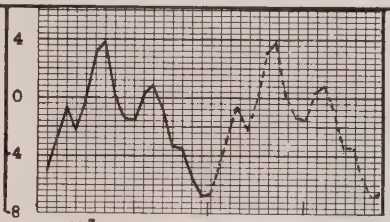
FIG. 4.

THE AVERAGE 17¾-YEAR WAVE IN TREE RING WIDTHS IN THE LUKACHUKAI DISTRICT, ARIZONA, 1100 A.D. to 1897 A.D.

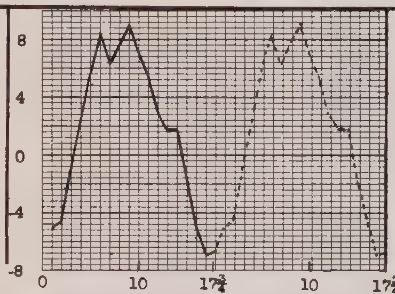
The charts show for each third of the period the 7-year moving average of the median of the percentages that the actual widths are of their uncentered three-decade moving averages, repeated in phantom.



Curve A. The average 17¾-year wave in the 266-year period 1100-1365.



Curve B. The average 17¾-year wave in the 266-year period 1366-1631.



Curve C. The average 17¾-year wave in the 266-year period 1632-1897.

many, how has the 18-year cycle been working out? In real estate activity, only fairly well. In building construction, very badly, in other series quite well, as shown above.

The 18-year cycle in real estate activity, up through the 1953 figure, is shown in Fig. 7. This chart brings up to date Fig. 1 in Chapter IX. As you can see, the crest came in 1945, within a year and a half of perfect timing. However for the past several years the index used has fluctuated around a level of about 15% above normal instead of sinking below normal, as would be expected at this stage of the cycle. The index used is the index of the *Real Estate Analyst*, the value for January being taken as the value for the year to make it comparable with the curve from 1796 to 1946 shown as Fig. 1 of Chapter IX.

What is "normal" is not revealed by the makers of the index. The abnormal strength of the index at the present time could be due to errors in determining "normal", but I think it more likely that we have simply not yet experienced the full extent of normal decline. In other words, real estate activity may go importantly lower before we experience the next major real estate activity boom. If so, of necessity, the current low will be late.

In building construction the cycle is more distorted than at any time since 1830, when our figures begin (see Fig. 2). Why? I do not know, but I suspect that war distortions are at the bottom of it.

If we assume that building construction has the same growth trend as manufacturing production and that without war the last building cycle would have been of normal proportions, the three war years of 1943, 1944, and 1945 created a building construction deficiency of over $20,000,000,000, measured in

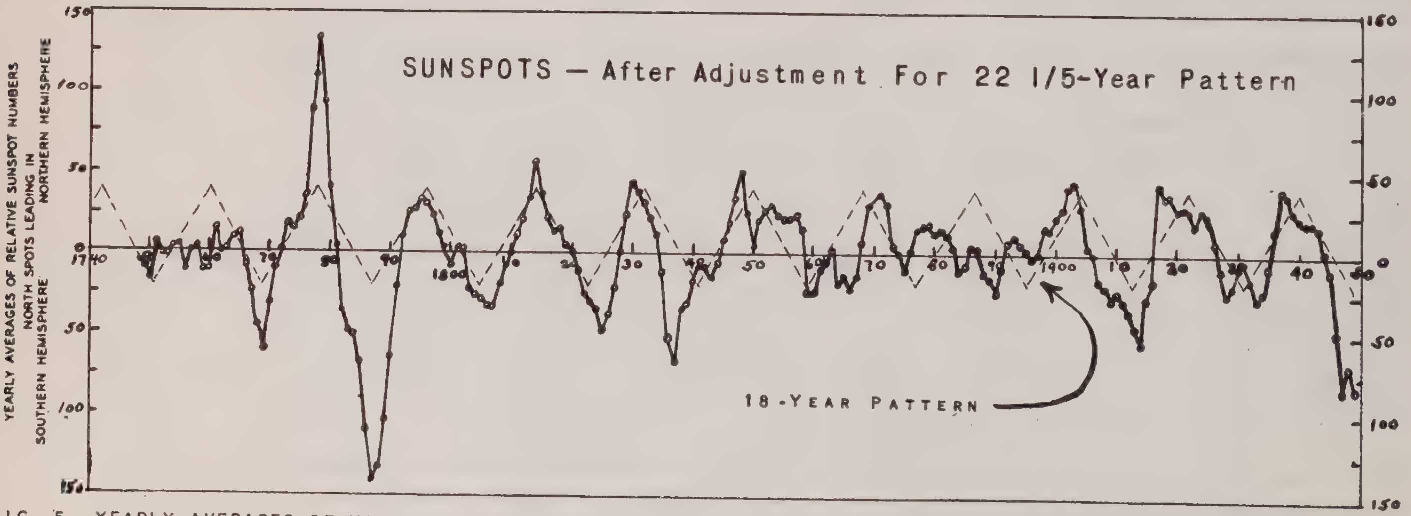


FIG. 5. YEARLY AVERAGES OF MONTHLY RELATIVE SUNSPOT NUMBERS, 1749-1949, ALTERNATE CYCLES REVERSED (AFTER ANDERSON), AFTER ADJUSTMENT FOR THE EFFECT OF THE 22 1/5-YEAR CYCLE. BROKEN LINE ADDED TO DIAGRAM THE 18-YEAR RHYTHM. (SCALE OF YEARS SHOWN ON AXIS.)

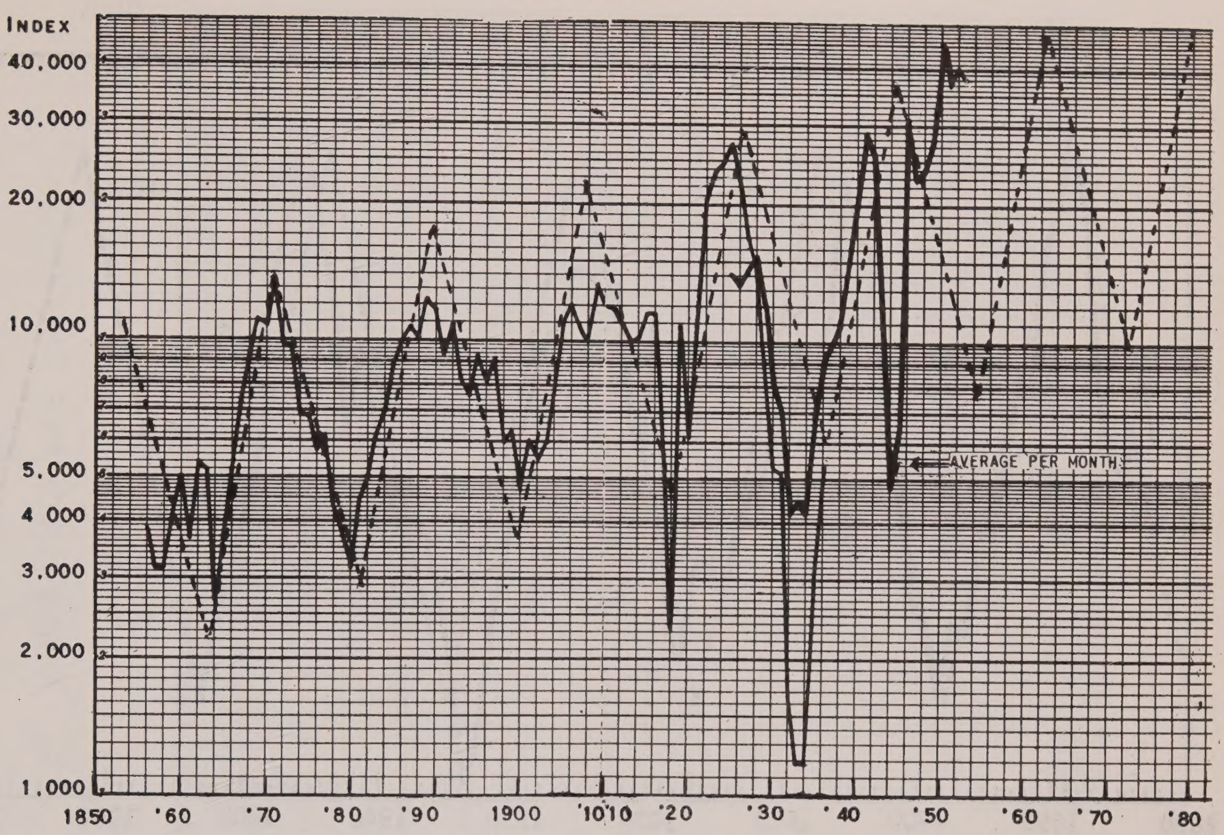


Fig. 6. Residential Building Construction in the United States, 1856--1953. An Index of the Number of New Dwellings. The Index is Based on the Index of Permits 1856--1936 Prepared by Clarence D. Long, Jr., and the Number of Residential Contracts Awarded in 37 States 1925-1953, as Reported by the F. W. Dodge Corporation. An 18 1/3-Year Zigzag has been Added and Projected into the Future to Indicate in a General Way What Will Happen if the 18 1/3-Year Cycle Continues. (Ratio Scale.)

1926 dollars. On the same assumptions, the excess building of 1950, 1951, 1952, and 1953 amounted to only $12,000,000,000, in 1926 dollars.

Reasoning of this sort cannot be relied on too heavily. Perhaps the last cycle was not of normal proportions. Probably building construction does not have the same trend as manufacturing production. Probably certain building that would have occurred in the war years will never be made up. I am not trying to tell you how much the cycle will be distorted in the future due to war distortions, I do not know. But I do know that war interference with the normal working of the cycle could easily explain all the cycle distortions we have had since that time, and more too. I am not saying it *did*, I am saying that it easily *could*.

Summary

The 18-year cycle is even more widespread than was originally known. The fact that the 18-year cycles are present over even longer periods of time than was originally known also tends to substantiate the significance of this cycle.

On the other hand it seems clear that the various "18-year" cycles are not all of the same wave length. And nothing which has been discovered during the past ten years throws any light on the cause of cycles of this general order of magnitude.

The work of the past ten years has served to expand and complicate the problem, rather than to solve it.

It is said that a scientist is a man who knows more and more of less and less. That is often true. But my study of the 18-year cycle seems to lead me in just the reverse direction. I find myself knowing less and less about more and more.

Doubtless someday the tide will turn. Doubtless also the present stage is a necessary prerequisite to an ultimate understanding of the very important subject of cycles.

E.R.D.

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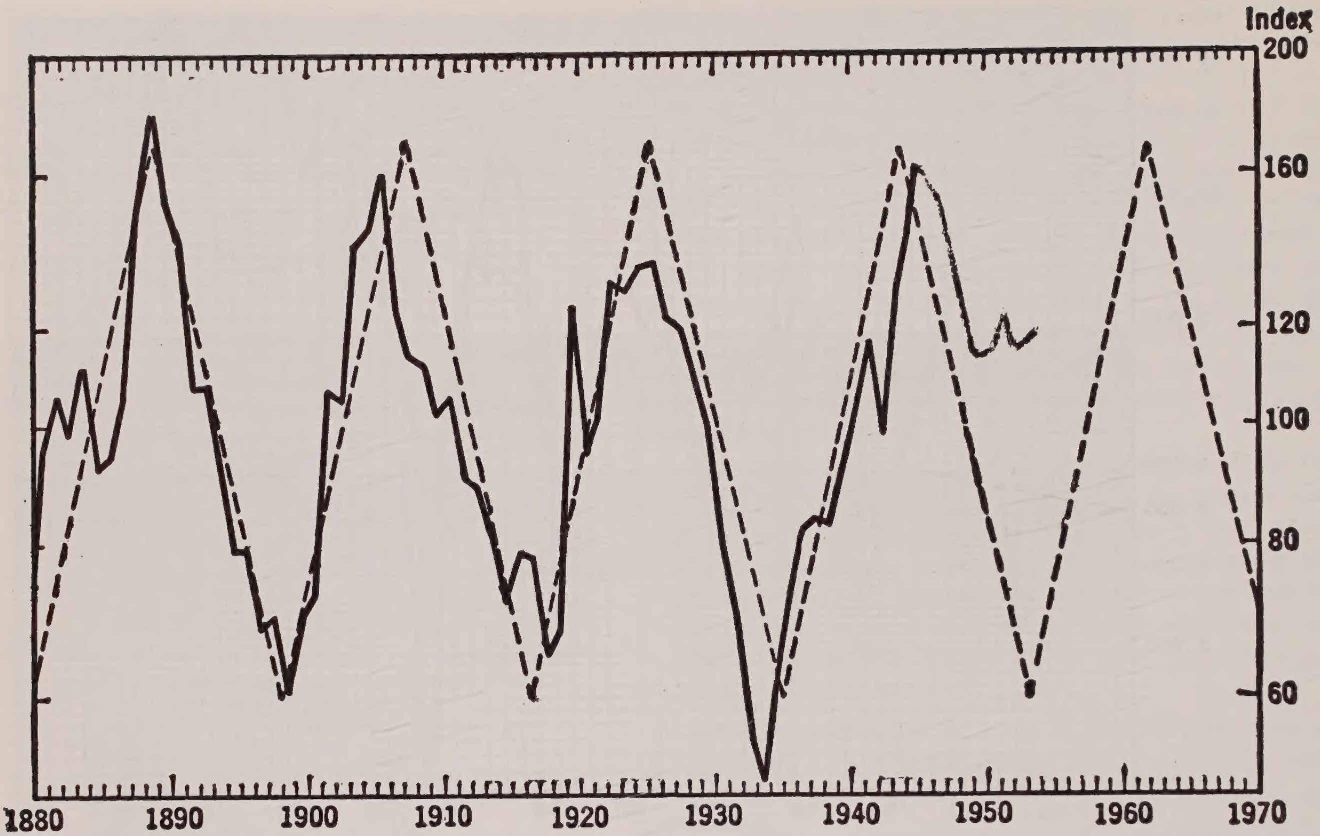

Fig. 7. REAL ESTATE ACTIVITY BROUGHT UP TO DATE

This chart brings up to date Fig. 1 of Chapter IX. The crest due in 1945 came one and a half years after ideal timing, but so far the weakness due at this stage of the cycle has not yet fully materialized.

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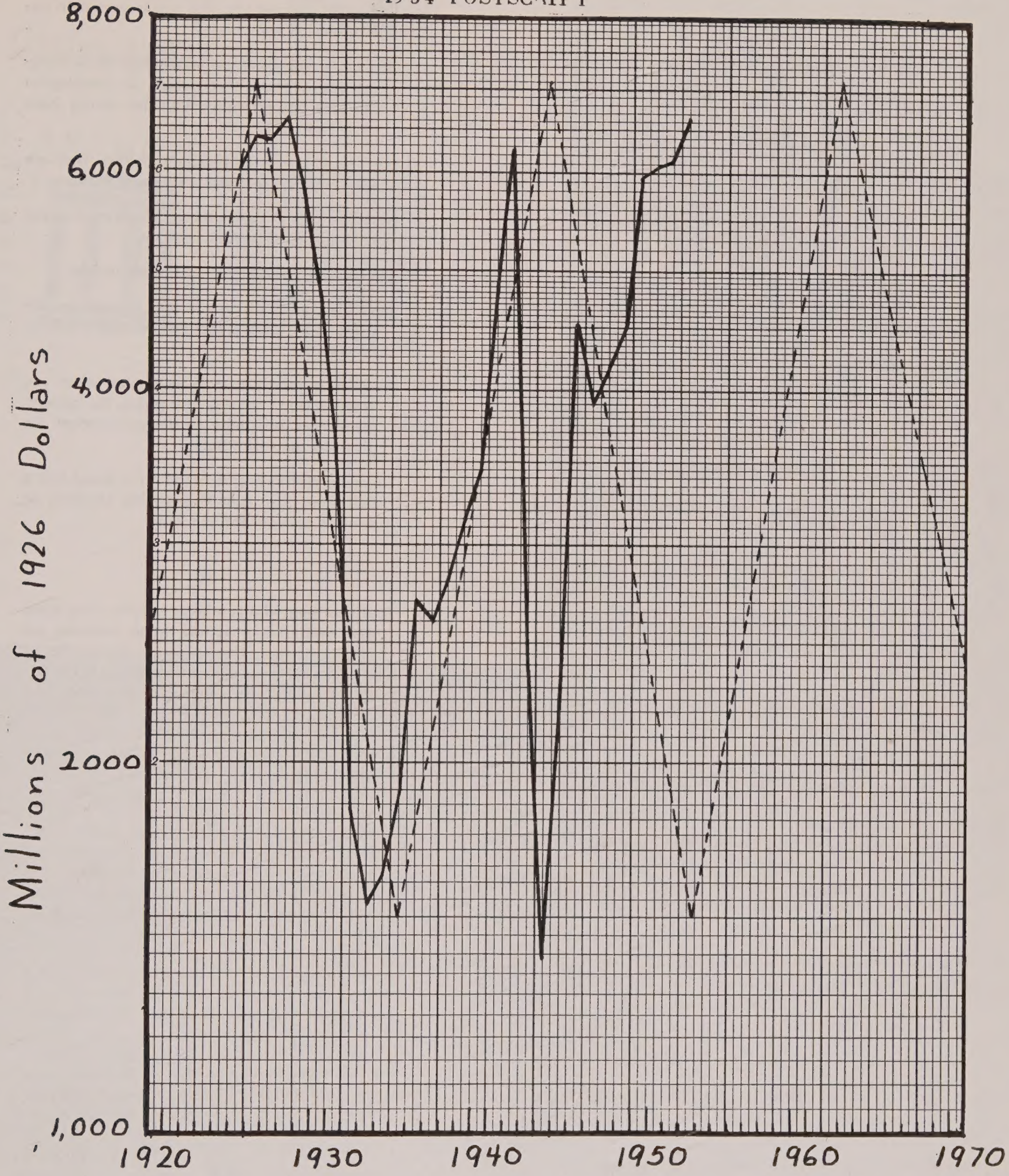

Fig. 8. BUILDING CONSTRUCTION BROUGHT UP TO DATE.

This chart brings up to date Fig. 2 of Chapter IX and shows F. W. Dodge Corporation value of construction contracts awarded in 37 states, only, to eliminate the effect of inflation, values have been expressed in 1926 dollars. The price adjustments are based on the construction cost index of the Engineering News Record. The solid line thus provides an index of the physical values of construction more nearly comparable with the Composite Index of 1830—1936.

The broken line diagrams the 18 1/3-year cycle, but *without including any factor for growth trend*. The index for 1830—1936 did not include growth trend either.

On the other hand the Dodge Corporation figures do include growth. Therefore, one cannot compare actual behavior (solid line) with the ideal (broken line) directly. That is to say, the deficiency of construction during the war was more than appears from a comparison of the two curves: contrarywise, the excess of construction at the present time is not as great as it appears on the surface.

WHAT KIND OF A COUNTRY ARE YOU LEAVING ME?

There is no use pretending you don't see me.

You just sit still and listen.

I'm not very smart yet, but I'm smart enough to see what you are doing to the country in which I must grow up and support my family.

When I do that, will I be allowed to be myself, or will I be a social security number in a government file?

When I get sick, whose doctor can I go to, my doctor or the government doctor?

When I go to school, who is going to decide what I learn, my mother and father or a government bureau?

When I am able to afford a house, will I be able to build one just as good as I can make it, or will it be a government-built house, worth only part of what the government taxed me for housing?

When I go to work, will I be able to pick my own job or will I have to get a work permit from the government and take whatever job they give me?

And if I have criticized the government, will I get a work permit?

II

What makes you think it would be "bad" for me to have to make my way in competition with others?

If I work a little harder, or better, or get lucky, will I be able to keep any more of what I earn than the other fellow who didn't work as hard, or as well, or get as lucky?

This luck business is important: In your heart you know that in the game of life there has to be a jackpot, or the game won't be played very hard.

Where did you get the cockeyed idea that the man who earns **twice as much** should be taxed **four times as much?**

(I know where you got it: right out of Marx.)

Where did you get this idea that government can take care of everybody?

You know you can't get something for nothing; yet you pretend that people in Washington can give you things without first taking them away from you.

Don't try to blame the people in politics: They are simply doing what **you want them to do.**

Naturally they favor the things you favor because getting elected is their business.

They would change overnight if **you** would.

And don't get the idea that they respect you for being saps: Only a fool can be sold a ride on his own horse.

And that is exactly what is happening when you vote yourself "security" by giving the government more and more so the government can give you some of it back.

I'd rather risk having to stand on a bread line a few times than spending my life standing on line for government handouts.

III

And you men who run labor unions: You know darn well that unearned wage increases are stage money.

And how about you folks who manage America's business; don't you know any better, and can't you do something about it?

Even **I** know that you can't expect prosperity when everybody is getting more money for producing fewer things.

Have you forgotten that the only reason Americans produce so much more and live so much better and easier is the whopping supply of tools of production that people used to be willing to save for in the days when profit was not a nasty word?

At the rate you are now going, the private property system will fall apart, and the tools will fall apart with it. Then goodbye America—and **me!**

What's wrong with the idea of paying people fairly for the use of the tools bought with their savings? The tools do most of the work.

I don't quite know what you mean by the word "conservative," but if it means what I think it means, **that's me!**

If there were any other place in the world where government wouldn't plan my life for me even more so, it wouldn't be so bad, but America is the only place left—and look what you are doing to it.

Aren't you ashamed!!!

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